ANNEX OF MATERIAL SAFETY DATA SHEET

EXPOSURE SCENARIOS ACCORDING TO ARTICLE 31 OF REGULATION (EC) NO 1907/2006 (REACH) OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

The Annex contains **exposure scenarios contained in Chapter 9 of the chemical safety report** dated **24/01/2023** (**numbering from it is maintained here below**) for identified uses of the substance.

9. EXPOSURE ASSESSMENT

The quantitative risk characterisation for exposure scenarios have been calculated using EasyTRA 5.2.0. and complies with EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a for the environmental exposure

Exposure assessment in EasyTRA follows a tiered approach and offers the options to generate user defined spERCs, article and product categories as a first refinement in the exposure calculations, before switching to higher Tier tools.

Unless stated otherwise, Simple Treat 4.0 has been used for modelling the biological sewage treatment plant (STP) according to ECHA Guidance on information requirements and Chemical Safety Assessment, Chapter R.16: Environmental exposure assessment, Version 3.0.

Targeted Risk Assessment (TRA) for mixtures:
This Targeted Risk Assessment has been considered for a mixture. The risk assessment has been performed for each individual component using the ingredient fraction. The total RCR* has been derived depending on the setting for this mixture. In separate mode the worst case RCR* per route/compartment from all components will be used. The additive mode uses the sum of all RCR*s per route/compartment from all components in the same additive group.
Table 1. Mixture component information

NAME	CAS/EC number	Ingredient fraction
Anhydrous		
Ammonia NH4/NH3 anhydrous	7664-41-7	100%
25% aqueous Ammonia		
Ammonia NH4/NH3 aqua	7664-41-7	25%
35% aqueous Ammonia		
Ammonia NH4/NH3 aqua	7664-41-7	35%

9.0.1 Risk characterisation for physico-chemical properties

The implementation of the chosen RMMs will ensure that the likelihood of an event occurring due to the hazard of the substance is negligible, and the risk is considered to be controlled to a level of no concern.
Prevention
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Storage
Store in a well-ventilated place. Protect from sunlight.
Response
Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources.
Taking into consideration the precautionary statements all uses of the substance for all users can be considered safe.

9.0.2 Overview of exposure scenarios

A comprehensive EasyTRA report documenting all details on used algorithms, defaults and specific use or environmental conditions is attached to this CSR for all scenarios that have been generated using EasyTRA.

ES	ES Code	Scenario name	Use descriptor	Page	Domain
1	ES-4 PROC 1, ES-4 PROC 3, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 7	Anhydrous form: Industrial end-use of anhydrous ammonia (heat transfer fluid, e.g., refrigerating, cooling/heating systems)	ERC 7; PROC 1, 3, 8B, 9	5	industrial
3	ES-4 PROC 1, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 8b, ES-4 ERC 6b	Anhydrous form: Industrial end-use of anhydrous and aqueous ammonia (flue gas NOx and SOx reduction)	ERC 6B; PROC 1, 2, 3, 8B	19	industrial
5	ES-4 PROC 1, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 ERC 6b	Anhydrous form: Industrial end-use of anhydrous and aqueous ammonia (processing, non-processing aids, auxiliary agent)	ERC 6B; PROC 1, 2, 3, 4, 8B	33	industrial
6	ES-4 PROC 1, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 8b, ES-4 ERC 6b	Anhydrous form: Industrial end-use of anhydrous and aqueous ammonia (reactive agent/processing aid and for general chemical applications, e.g., extraction, water treatment/septicity control, pH/neutralising agent)	ERC 6B; PROC 1, 2, 3, 8B	50	industrial
8	ES-5 PROC 1, ES-5 PROC 15, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 5, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b	Anhydrous form: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (formulation o mixtures)	ERC 8B; PROC 1, 15, 19, 2, 3, 5, 8B, 9	64	professional
9	ES-5 PROC 1, ES-5 PROC 15, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 20, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 9a, ES-5 ERC 9b	Anhydrous form: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (heat transfer fluid, e.g., refrigeration, cooling/heating systems)	ERC 9A, 9B; PROC 1, 15, 19, 2, 20, 8B, 9	86	professional
11	ES-5 PROC 1, ES-5 PROC 10, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 4, ES-5 PROC 8a, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b, ES-5 ERC 8e	Anhydrous form: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (reactive agent/processing aid, general chemical applications, e.g., pH/neutralising agent, water treatment)	ERC 8B, 8E; PROC 1, 10, 19, 2, 3, 4, 8A, 8B, 9	105	professional
13	ES-2 PROC 1, ES-2 PROC 15, ES-2 PROC 2, ES-2 PROC 3, ES-2 PROC 4, ES-2 PROC 8b, ES-2 PROC 9, ES-2	Distribution and formulation of ammonia aqueous up to 25%	ERC 2; PROC 1, 15, 2, 3, 4, 8B, 9	132	industrial
14	ES-2 PROC 1, ES-2 PROC 15, ES-2 PROC 2, ES-2 PROC 3, ES-2 PROC 8b, ES-2 PROC 9, ES-2	Distribution and formulation of ammonia aqueous up to 35%	ERC 2; PROC 1, 15, 2, 3, 8B, 9	158	industrial
15	ES-2 PROC 1, ES-2 PROC 15, ES-2 PROC 2, ES-2 PROC 3, ES-2 PROC 8b, ES-2 PROC 9, ES-2	Distribution and formulation of anhydrous ammonia	ERC 2; PROC 1, 15, 2, 3, 8B, 9	178	industrial
17	ES-3 PROC 1, ES-3 PROC 15, ES-3 PROC 2, ES-3 PROC 3, ES-3 PROC 4, ES-3 PROC 8b, ES-3 PROC 9, ES-3	Industrial use of ammonia aqueous up to 25% as intermediate	ERC 6A; PROC 1, 15, 2, 3, 4, 8B, 9	200	industrial
18	ES-3 PROC 1, ES-3 PROC 15, ES-3 PROC 2, ES-3 PROC 3, ES-3 PROC 8b, ES-3 PROC 9, ES-3	Industrial use of ammonia aqueous up to 35% as intermediate	ERC 6A; PROC 1, 15, 2, 3, 8B, 9	203	industrial
19	ES-3 PROC 1, ES-3 PROC 15, ES-3 PROC 2, ES-3 PROC 3, ES-3 PROC 8b, ES-3 PROC 9, ES-3	Industrial use of anhydrous ammonia as an intermediate	ERC 6A; PROC 1, 15, 2, 3, 8B, 9	242	industrial

20	ES-1 PROC 1, ES-1 PROC 15, ES-1 PROC 2, ES-1 PROC 8b, ES-1	Manufacturing of anhydrous ammonia	ERC 1; PROC 1, 15, 2, 8B	262	industrial
24	ES-4 PROC 1, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b	Up to 25% aqueous: Industrial end-use of anhydrous and aqueous ammonia (flue gas NOx and SOx reduction)	ERC 6B; PROC 1, 19, 2, 3, 4, 8B, 9	278	industrial
26	ES-4 PROC 1, ES-4 PROC 10, ES-4 PROC 13, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 5, ES-4 PROC 7, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b	Up to 25% aqueous: Industrial end-use of anhydrous and aqueous ammonia (processing, non-processing aids, auxiliary agent)	ERC 6B; PROC 1, 10, 13, 19, 2, 3, 4, 5, 7, 8B, 9	296	industrial
27	ES-4 PROC 1, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b	Up to 25% aqueous: Industrial end-use of anhydrous and aqueous ammonia (reactive agent/processing aid and for general chemical applications, e.g., extraction, water treatment/septicity control, pH/neutralising agent)	ERC 6B; PROC 1, 2, 3, 4, 8B, 9	324	industrial
30	ES-5 PROC 1, ES-5 PROC 15, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 5, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b	Up to 25% aqueous: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (formulation of mixtures)	ERC 8B; PROC 1, 15, 19, 2, 3, 5, 8B, 9	341	professional
34	ES-5 PROC 1, ES-5 PROC 10, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 4, ES-5 PROC 8a, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b, ES-5 ERC 8e	Up to 25% aqueous: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (reactive agent/processing aid, general chemical applications, e.g., pH/neutralising agent, water treatment)	ERC 8B, 8E; PROC 1, 10, 19, 2, 3, 4, 8A, 8B, 9	364	professional
37	ES-4 PROC 1, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b	Up to 35% aqueous: Industrial end-use of anhydrous and aqueous ammonia (flue gas NOx and SOx reduction)	ERC 6B; PROC 1, 19, 2, 3, 4, 8B, 9	393	industrial
39	ES-4 PROC 1, ES-4 PROC 10, ES-4 PROC 13, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 5, ES-4 PROC 7, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b	Up to 35% aqueous: Industrial end-use of anhydrous and aqueous ammonia (processing, non-processing aids, auxiliary agent)	ERC 6B; PROC 1, 10, 13, 19, 2, 3, 4, 5, 7, 8B, 9	411	industrial
40	ES-4 PROC 1, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b	Up to 35% aqueous: Industrial end-use of anhydrous and aqueous ammonia (reactive agent/processing aid and for general chemical applications, e.g., extraction, water treatment/septicity control, pH/neutralising agent)	ERC 6B; PROC 1, 19, 2, 3, 4, 8B, 9	440	industrial
42	ES-5 PROC 1, ES-5 PROC 15, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 5, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b	Up to 35% aqueous: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (formulation of mixtures)	ERC 8B; PROC 1, 15, 19, 2, 3, 5, 8B, 9	458	professional
45	ES-5 PROC 1, ES-5 PROC 10, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 4, ES-5 PROC 8a, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b, ES-5 ERC 8e	Up to 35% aqueous: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (reactive agent/processing aid, general chemical applications, e.g., pH/neutralising agent, water treatment)	ERC 8B, 8E; PROC 1, 10, 19, 2, 3, 4, 8A, 8B, 9	480	professional

COVERING PAGE - information applicable to all ESs listed below

Conditions of use common to all contributing scenarios (CSs) for following ES: 1, 3, 5, 6, 8, 9, 11, 13 - 15, 17 - 20

Name of contributing scenario	PROC relevant for CS
Exposure type	Inhalation: Long-term systemic; Dermal: Long-term systemic
Product characteristics	
Physical state	liquid
Concentration in substance	**100%**
Max. conc. (ECETOC)	>25%
Fugacity / Dustiness	high
Frequency and duration of use	
Duration of activity	according to CS
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	according to CS
Other given operational conditions affecting workers exposure	
Location	according to CS
Domain	Industrial (unless otherwise stated as Professional for ES 8, 9, 11, 30, 34,42,45)
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	according to CS
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	according to CS
Respiratory protection	according to CS

Note 1
Explanations for the RCR assessment (Risk characterization ratio), listed in the following tables for individual ECs (marked with *):
[1] *Worst case result used for total RCR (Risk characterisation ratio), RCR <1 means safe use*
[2] *Part of additive RCR*
[3] *Worst case value, as dermal and inhalation RCRs are coming from different substances*

Note 2:
Information valid for all tables numbered 9.XX.XX.2 Exposure and risks for workers (XX – number of the given ES), (marked with **)
9.XX.XX.2 Exposure and risks for workers
The quantitative risk characterisation for this worker exposure has been calculated by EasyTRA.
The following table shows the exposure estimations via the dermal and inhalation route together with the total exposure of workers over all routes if applicable.

9.1 Scenario ES 1: Anhydrous form: Industrial end-use of anhydrous ammonia (heat transfer fluid, e.g., refrigerating, cooling/heating systems) (ES-4 PROC 1, ES-4 PROC 3, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 7)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Anhydrous form: Industrial end-use of anhydrous ammonia (heat transfer fluid, e.g., refrigerating, cooling/heating systems) (ES-4 PROC 1, ES-4 PROC 3, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 7)
Systematic title based on use descriptor	ERC 7; PROC 1, 3, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 7 Industrial use of substances in closed systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.1.1 Contributing Scenario (1) controlling environmental exposure for ERC 7

9.1.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.55E5 to/year
Daily amount used at site	41.642 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.005 %
Release fraction to wastewater from process	0.050 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.249837 % *(Max. tonnage biggest customer: 354631 tpa / 400 = 886 tpa)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*

SpERC	NH4 - 7 (spERC -7 – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.25% (Default 100%). The substance is industrially used by 400 companies indicating a fraction main source of 0.25%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 354631 tpa to regional tonnage 25000 tpa. Release to air: 0.005% (Default: 5%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.05% (Default: 5%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 5/100 = 0.05% was set arbitrarily. Release to soil: 0% (Default: 5%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.1.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.1.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Freshwater	0.00003 mg/L	0.00135 mg/L	0.022412[1]	1,858.049
Marine water	2.99E-6 mg/L	0.00135 mg/L	0.002216[1]	1.88E4
Total result				
Freshwater	0.00003 mg/L	-	0.022412	1,858.049
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	2.99E-6 mg/L	-	0.002216	1.88E4
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.1.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Agricultural soil	0.000169 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.007665[1]	5,433.059
Total result				
Agricultural soil	0.000169 mg/kg_{dwt}	-	-	5,433.059

9.1.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 16)
9.1.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.1.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.1.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1 (PC 16)

9.1.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.1.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.1.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1 (PC 16)

9.1.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.1.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.1.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1 (PC 16)

9.1.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.1.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.1.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 1 (PC 16)

9.1.6.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.1.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.1.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 1 (PC 16)

9.1.7.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.1.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.1.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 3 (PC 16)

9.1.8.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.1.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.754 mg/kg$_{bw}$/day	-	0.846245
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.846245

9.1.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 3 (PC 16)

9.1.9.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.1.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.1.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 3 (PC 16)

9.1.10.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.1.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.068571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.010084[1]
inhalation, long-term systemic	3.548 mg/m³	47.6 mg/m³	0.07454[1]
Combined routes	0.575446 mg/kg$_{bw}$/day	-	0.084624
Total result			
dermal	-	-	0.010084
inhalation	-	-	0.07454
Combined routes	- mg/kg$_{bw}$/day	-	0.084624

9.1.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 3 (PC 16)

9.1.11.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.1.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.041143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00605[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.345268 mg/kg$_{bw}$/day	-	0.050775
Total result			
dermal	-	-	0.00605
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.050775

9.1.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 3 (PC 16)

9.1.12.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.1.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.234 mg/kg$_{bw}$/day	-	0.622623
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.622623

9.1.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 3 (PC 16)

9.1.13.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.1.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.54 mg/kg$_{bw}$/day	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.373574

9.1.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 8B (PC 16)

9.1.14.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.1.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	4.263 mg/kg$_{bw}$/day	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.626983

9.1.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 8B (PC 16)

9.1.15.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.1.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	2.558 mg/kg$_{bw}$/day	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.37619

9.1.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 8B (PC 16)

9.1.16.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.1.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	5.322 mg/m³	47.6 mg/m³	0.111811[1]
Combined routes	0.897455 mg/kg$_{bw}$/day	-	0.131979
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.111811
Combined routes	- mg/kg$_{bw}$/day	-	0.131979

9.1.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 8B (PC 16)

9.1.17.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.1.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	3.193 mg/m³	47.6 mg/m³	0.067086[1]
Combined routes	0.538473 mg/kg$_{bw}$/day	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- mg/kg$_{bw}$/day	-	0.079187

9.1.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 8B (PC 16)

9.1.18.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.1.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	3.807 mg/kg$_{bw}$/day	-	0.559896
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.559896

9.1.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 8B (PC 16)

9.1.19.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.1.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	2.284 mg/kg$_{bw}$/day	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.335938

9.1.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 9 (PC 16)

9.1.20.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.1.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	14.193 mg/m³	47.6 mg/m³	0.298162[1]
Combined routes	3.399 mg/kg$_{bw}$/day	-	0.499842
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.298162
Combined routes	- mg/kg$_{bw}$/day	-	0.499842

9.1.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 9 (PC 16)

9.1.21.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.1.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]
Combined routes	2.039 mg/kg$_{bw}$/day	-	0.299905
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.299905

9.1.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 9 (PC 16)

9.1.22.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.1.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	14.193 mg/m³	47.6 mg/m³	0.298162[1]
Combined routes	2.165 mg/kg$_{bw}$/day	-	0.31833
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.298162
Combined routes	- mg/kg$_{bw}$/day	-	0.31833

9.1.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 9 (PC 16)

9.1.23.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.1.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]
Combined routes	1.299 mg/kg$_{bw}$/day	-	0.190998
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.190998

9.1.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 9 (PC 16)

9.1.24.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)

Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.1.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	9.935 mg/m^3	47.6 mg/m^3	0.208713[1]
Combined routes	2.791 $mg/kg_{bw}/day$	-	0.410394
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.208713
Combined routes	- $mg/kg_{bw}/day$	-	0.410394

9.1.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 9 (PC 16)

9.1.25.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.1.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	5.961 mg/m^3	47.6 mg/m^3	0.125228[1]
Combined routes	1.674 $mg/kg_{bw}/day$	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- $mg/kg_{bw}/day$	-	0.246236

9.3 Scenario ES 3: Anhydrous form: Industrial end-use of anhydrous and aqueous ammonia (flue gas NOx and SOx reduction) (ES-4 PROC 1, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 8b, ES-4 ERC 6b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Anhydrous form: Industrial end-use of anhydrous and aqueous ammonia (flue gas NOx and SOx reduction) (ES-4 PROC 1, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 8b, ES-4 ERC 6b)
Systematic title based on use descriptor	ERC 6B; PROC 1, 2, 3, 8B
Name of contributing environmental scenario and corresponding ERC	ERC 6b Industrial use of reactive processing aids
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities

9.3.1 Contributing Scenario (1) controlling environmental exposure for ERC 6B

9.3.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.55E5 to/year
Daily amount used at site	41.642 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.0001 %
Release fraction to wastewater from process	0.050 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.249837 % *(Maximum tonnage biggest customer: 354631 tpa / 400 = 886 tpa)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*
SpERC	NH-4 - 6b (spERC -6b – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.25% (Default 100%). The substance is industrially used by 400 companies indicating a fraction main source of 0.25%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 354631 tpa to regional tonnage 25000 tpa. Release to air: 0.0001% (Default: 0.1%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.05% (Default: 5%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 5/100 = 0.05% was set arbitrarily. Release to soil: 0% (Default: 0.025%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.3.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.3.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Freshwater	0.00003 mg/L	0.00135 mg/L	0.022412[1]	1,858.049
Marine water	2.99E-6 mg/L	0.00135 mg/L	0.002216[1]	1.88E4
Total result				
Freshwater	0.00003 mg/L	-	0.022412	1,858.049
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	2.99E-6 mg/L	-	0.002216	1.88E4
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.3.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Agricultural soil	0.000168 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.007591[1]	5,485.57
Total result				
Agricultural soil	0.000168 mg/kg_{dwt}	-	-	5,485.57

9.3.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 0)
9.3.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.3.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m^3	47.6 mg/m^3	0.000063[1]
Combined routes	0.020997 $mg/kg_{bw}/day$	-	0.003088
Total result			
dermal	-	-	0.003025

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.3.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1 (PC 0)

9.3.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.3.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.3.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1 (PC 0)

9.3.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.3.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.3.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1 (PC 0)

9.3.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.3.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.3.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 1 (PC 0)

9.3.6.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.3.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.3.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 1 (PC 0)

9.3.7.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.3.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.3.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 2

9.3.8.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.3.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.3.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 2

9.3.9.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.3.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.3.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 2

9.3.10.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.3.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.3.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 2

9.3.11.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.3.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.3.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 2

9.3.12.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.3.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	1.774 mg/m³	47.6 mg/m³	0.03727[1]
Combined routes	0.39058 mg/kg$_{bw}$/day	-	0.057438
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.03727
Combined routes	- mg/kg$_{bw}$/day	-	0.057438

9.3.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 2

9.3.13.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.3.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	1.064 mg/m³	47.6 mg/m³	0.022362[1]
Combined routes	0.234348 mg/kg$_{bw}$/day	-	0.034463
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.022362
Combined routes	- mg/kg$_{bw}$/day	-	0.034463

9.3.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 3

9.3.14.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.3.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.754 mg/kg$_{bw}$/day	-	0.846245
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.846245

9.3.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 3

9.3.15.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.3.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.234 mg/kg$_{bw}$/day	-	0.622623
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.622623

9.3.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 3

9.3.16.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.3.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.3.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 3

9.3.17.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.3.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.54 mg/kg$_{bw}$/day	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.373574

9.3.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 3

9.3.18.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No

Respiratory protection	no

9.3.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.068571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.010084[1]
inhalation, long-term systemic	3.548 mg/m³	47.6 mg/m³	0.07454[1]
Combined routes	0.575446 mg/kg$_{bw}$/day	-	0.084624
Total result			
dermal	-	-	0.010084
inhalation	-	-	0.07454
Combined routes	- mg/kg$_{bw}$/day	-	0.084624

9.3.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 3

9.3.19.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.3.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.041143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00605[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.345268 mg/kg$_{bw}$/day	-	0.050775
Total result			
dermal	-	-	0.00605
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.050775

9.3.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 8B

9.3.20.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.3.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	4.263 mg/kg$_{bw}$/day	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.626983

9.3.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 8B

9.3.21.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.3.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	3.807 mg/kg$_{bw}$/day	-	0.559896
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.559896

9.3.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 8B

9.3.22.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.3.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	2.558 mg/kg$_{bw}$/day	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.37619

9.3.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 8B

9.3.23.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.3.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	5.322 mg/m³	47.6 mg/m³	0.111811[1]
Combined routes	0.897455 mg/kg$_{bw}$/day	-	0.131979
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.111811
Combined routes	- mg/kg$_{bw}$/day	-	0.131979

9.3.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 8B

9.3.24.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2

Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.3.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	2.284 mg/kg$_{bw}$/day	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.335938

9.3.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 8B

9.3.25.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.3.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	3.193 mg/m³	47.6 mg/m³	0.067086[1]
Combined routes	0.538473 mg/kg$_{bw}$/day	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- mg/kg$_{bw}$/day	-	0.079187

9.5 Scenario ES 5: Anhydrous form: Industrial end-use of anhydrous and aqueous ammonia (processing, non-processing aids, auxiliary agent) (ES-4 PROC 1, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 ERC 6b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Anhydrous form: Industrial end-use of anhydrous and aqueous ammonia (processing, non-processing aids, auxiliary agent) (ES-4 PROC 1, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 ERC 6b)
Systematic title based on use descriptor	ERC 6B; PROC 1, 2, 3, 4, 8B
Name of contributing environmental scenario and corresponding ERC	ERC 6b Industrial use of reactive processing aids
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities

9.5.1 Contributing Scenario (1) controlling environmental exposure for ERC 6B

9.5.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.55E5 to/year
Daily amount used at site	41.642 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.0001 %
Release fraction to wastewater from process	0.050 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.249837 % *(Maximum tonnage biggest customer: 354631 tpa / 400 = 886 tpa)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*

SpERC	NH-4 - 6b (spERC -6b – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.25% (Default 100%). The substance is industrially used by 400 companies indicating a fraction main source of 0.25%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 354631 tpa to regional tonnage 25000 tpa. Release to air: 0.0001% (Default: 0.1%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.05% (Default: 5%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 5/100 = 0.05% was set arbitrarily. Release to soil: 0% (Default: 0.025%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.5.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.5.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Freshwater	0.00003 mg/L	0.00135 mg/L	0.022412[1]	1,858.049
Marine water	2.99E-6 mg/L	0.00135 mg/L	0.002216[1]	1.88E4
Total result				
Freshwater	0.00003 mg/L	-	0.022412	1,858.049
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	2.99E-6 mg/L	-	0.002216	1.88E4
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.5.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Agricultural soil	0.000168 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.007591[1]	5,485.57
Total result				
Agricultural soil	0.000168 mg/kg_{dwt}	-	-	5,485.57

9.5.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1
9.5.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.5.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.5.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1

9.5.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.5.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.5.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1

9.5.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.5.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.5.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1

9.5.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.5.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.5.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 1

9.5.6.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.5.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.5.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 1

9.5.7.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.5.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.5.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 2

9.5.8.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.5.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.5.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 2

9.5.9.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.5.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.5.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 2

9.5.10.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.5.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	1.774 mg/m³	47.6 mg/m³	0.03727[1]
Combined routes	0.39058 mg/kg$_{bw}$/day	-	0.057438
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.03727
Combined routes	- mg/kg$_{bw}$/day	-	0.057438

9.5.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 2

9.5.11.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.5.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	1.064 mg/m³	47.6 mg/m³	0.022362[1]
Combined routes	0.234348 mg/kg$_{bw}$/day	-	0.034463
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.022362
Combined routes	- mg/kg$_{bw}$/day	-	0.034463

9.5.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 2

9.5.12.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.5.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.5.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 2

9.5.13.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.5.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.5.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 3

9.5.14.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.5.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.754 mg/kg$_{bw}$/day	-	0.846245
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.846245

9.5.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 3

9.5.15.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.5.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.5.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 3

9.5.16.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.5.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.068571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.010084[1]
inhalation, long-term systemic	3.548 mg/m³	47.6 mg/m³	0.07454[1]
Combined routes	0.575446 mg/kg$_{bw}$/day	-	0.084624
Total result			
dermal	-	-	0.010084
inhalation	-	-	0.07454
Combined routes	- mg/kg$_{bw}$/day	-	0.084624

9.5.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 3

9.5.17.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.5.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.041143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00605[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.345268 mg/kg$_{bw}$/day	-	0.050775
Total result			
dermal	-	-	0.00605
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.050775

9.5.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 3

9.5.18.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	No
Respiratory protection	no

9.5.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.234 mg/kg$_{bw}$/day	-	0.622623
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.622623

9.5.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 3

9.5.19.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.5.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.54 mg/kg$_{bw}$/day	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.373574

9.5.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 4

9.5.20.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.5.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	7.096 mg/m³	47.6 mg/m³	0.149081[1]
Combined routes	2.385 mg/kg$_{bw}$/day	-	0.350762
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.149081
Combined routes	- mg/kg$_{bw}$/day	-	0.350762

9.5.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 4

9.5.21.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.5.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	4.258 mg/m³	47.6 mg/m³	0.089449[1]
Combined routes	1.431 mg/kg$_{bw}$/day	-	0.210457
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.089449
Combined routes	- mg/kg$_{bw}$/day	-	0.210457

9.5.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 4

9.5.22.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors

Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.5.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	7.096 mg/m³	47.6 mg/m³	0.149081[1]
Combined routes	1.151 mg/kg$_{bw}$/day	-	0.169249
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.149081
Combined routes	- mg/kg$_{bw}$/day	-	0.169249

9.5.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 4

9.5.23.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.5.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	4.258 mg/m³	47.6 mg/m³	0.089449[1]
Combined routes	0.690536 mg/kg$_{bw}$/day	-	0.101549
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.089449
Combined routes	- mg/kg$_{bw}$/day	-	0.101549

9.5.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 4

9.5.24.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	> 4 hours (default)

Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.5.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	4.967 mg/m^3	47.6 mg/m^3	0.104357[1]
Combined routes	2.081 $mg/kg_{bw}/day$	-	0.306037
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.104357
Combined routes	- $mg/kg_{bw}/day$	-	0.306037

9.5.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 4

9.5.25.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.5.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	2.98 mg/m^3	47.6 mg/m^3	0.062614[1]
Combined routes	1.249 $mg/kg_{bw}/day$	-	0.183622
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.062614
Combined routes	- $mg/kg_{bw}/day$	-	0.183622

9.5.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 8B

9.5.26.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities

Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.5.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	4.263 $mg/kg_{bw}/day$	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.626983

9.5.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 8B

9.5.27.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.5.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	6.387 mg/m^3	47.6 mg/m^3	0.134173[1]
Combined routes	2.558 $mg/kg_{bw}/day$	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- $mg/kg_{bw}/day$	-	0.37619

9.5.28 Contributing Scenario (28) controlling industrial worker exposure for PROC 8B

9.5.28.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.5.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.020168[1]
inhalation, long-term systemic	5.322 mg/m^3	47.6 mg/m^3	0.111811[1]
Combined routes	0.897455 $mg/kg_{bw}/day$	-	0.131979
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.111811
Combined routes	- $mg/kg_{bw}/day$	-	0.131979

9.5.29 Contributing Scenario (29) controlling industrial worker exposure for PROC 8B

9.5.29.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.5.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	3.193 mg/m^3	47.6 mg/m^3	0.067086[1]
Combined routes	0.538473 $mg/kg_{bw}/day$	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- $mg/kg_{bw}/day$	-	0.079187

9.5.30 Contributing Scenario (30) controlling industrial worker exposure for PROC 8B

9.5.30.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.5.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	3.807 $mg/kg_{bw}/day$	-	0.559896
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.559896

9.5.31 Contributing Scenario (31) controlling industrial worker exposure for PROC 8B

9.5.31.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.5.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	4.471 mg/m^3	47.6 mg/m^3	0.093921[1]
Combined routes	2.284 $mg/kg_{bw}/day$	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- $mg/kg_{bw}/day$	-	0.335938

9.6 Scenario ES 6: Anhydrous form: Industrial end-use of anhydrous and aqueous ammonia (reactive agent/processing aid and for general chemical applications, e.g., extraction, water treatment/septicity control, pH/neutralising agent) (ES-4 PROC 1, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 8b, ES-4 ERC 6b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Anhydrous form: Industrial end-use of anhydrous and aqueous ammonia (reactive agent/processing aid and for general chemical applications, e.g., extraction, water treatment/septicity control, pH/neutralising agent) (ES-4 PROC 1, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 8b, ES-4 ERC 6b)
Systematic title based on use descriptor	ERC 6B; PROC 1, 2, 3, 8B
Name of contributing environmental scenario and corresponding ERC	ERC 6b Industrial use of reactive processing aids
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities

9.6.1 Contributing Scenario (1) controlling environmental exposure for ERC 6B

9.6.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.55E5 to/year
Daily amount used at site	41.642 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.0001 %
Release fraction to wastewater from process	0.050 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.249837 % *(Maximum tonnage biggest customer: 354631 tpa / 400 = 886 tpa)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*

SpERC	NH-4 - 6b (spERC -6b – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.25% (Default 100%). The substance is industrially used by 400 companies indicating a fraction main source of 0.25%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 354631 tpa to regional tonnage 25000 tpa. Release to air: 0.0001% (Default: 0.1%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.05% (Default: 5%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 5/100 = 0.05% was set arbitrarily. Release to soil: 0% (Default: 0.025%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.6.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.6.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Freshwater	0.00003 mg/L	0.00135 mg/L	0.022412[1]	1,858.049
Marine water	2.99E-6 mg/L	0.00135 mg/L	0.002216[1]	1.88E4
Total result				
Freshwater	0.00003 mg/L	-	0.022412	1,858.049
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	2.99E-6 mg/L	-	0.002216	1.88E4
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.6.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Agricultural soil	0.000168 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.007591[1]	5,485.57
Total result				
Agricultural soil	0.000168 mg/kg_{dwt}	-	-	5,485.57

9.6.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)
9.6.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.6.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.6.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.6.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.6.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.6.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.6.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.6.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.6.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.6.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.6.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.6.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.6.6.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.6.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.6.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.6.7.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.6.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.6.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.6.8.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.6.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.6.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.6.9.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.6.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.6.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.6.10.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.6.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	1.774 mg/m³	47.6 mg/m³	0.03727[1]
Combined routes	0.39058 mg/kg$_{bw}$/day	-	0.057438
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.03727
Combined routes	- mg/kg$_{bw}$/day	-	0.057438

9.6.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.6.11.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.6.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	1.064 mg/m³	47.6 mg/m³	0.022362[1]
Combined routes	0.234348 mg/kg$_{bw}$/day	-	0.034463
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.022362
Combined routes	- mg/kg$_{bw}$/day	-	0.034463

9.6.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.6.12.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.6.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.6.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.6.13.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.6.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.6.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.6.14.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.6.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.754 mg/kg$_{bw}$/day	-	0.846245
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.846245

9.6.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.6.15.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.6.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.6.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.6.16.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.6.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.068571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.010084[1]
inhalation, long-term systemic	3.548 mg/m³	47.6 mg/m³	0.07454[1]
Combined routes	0.575446 mg/kg$_{bw}$/day	-	0.084624
Total result			
dermal	-	-	0.010084
inhalation	-	-	0.07454
Combined routes	- mg/kg$_{bw}$/day	-	0.084624

9.6.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.6.17.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.6.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.041143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00605[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.345268 mg/kg$_{bw}$/day	-	0.050775
Total result			
dermal	-	-	0.00605
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.050775

9.6.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.6.18.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	No
Respiratory protection	no

9.6.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.234 mg/kg$_{bw}$/day	-	0.622623
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.622623

9.6.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.6.19.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.6.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.54 mg/kg$_{bw}$/day	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.373574

9.6.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.6.20.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.6.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	4.263 mg/kg$_{bw}$/day	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.626983

9.6.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.6.21.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.6.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	2.558 mg/kg$_{bw}$/day	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.37619

9.6.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.6.22.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.6.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	5.322 mg/m³	47.6 mg/m³	0.111811[1]
Combined routes	0.897455 mg/kg$_{bw}$/day	-	0.131979
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.111811
Combined routes	- mg/kg$_{bw}$/day	-	0.131979

9.6.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.6.23.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.6.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	3.193 mg/m³	47.6 mg/m³	0.067086[1]
Combined routes	0.538473 mg/kg$_{bw}$/day	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- mg/kg$_{bw}$/day	-	0.079187

9.6.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.6.24.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)

Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.6.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	3.807 $mg/kg_{bw}/day$	-	0.559896
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.559896

9.6.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.6.25.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.6.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	4.471 mg/m^3	47.6 mg/m^3	0.093921[1]
Combined routes	2.284 $mg/kg_{bw}/day$	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- $mg/kg_{bw}/day$	-	0.335938

9.8 Scenario ES 8: Anhydrous form: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (formulation o mixtures) (ES-5 PROC 1, ES-5 PROC 15, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 5, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Anhydrous form: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (formulation o mixtures) (ES-5 PROC 1, ES-5 PROC 15, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 5, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b)
Systematic title based on use descriptor	ERC 8B; PROC 1, 15, 19, 2, 3, 5, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 8b Wide dispersive indoor use of reactive substances in open systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 15 - Use of laboratory reagents in small scale laboratories PROC 19 - Hand-mixing with intimate contact (only PPE available) PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.8.1 Contributing Scenario (1) controlling environmental exposure for ERC 8B

9.8.1.1 Conditions of use

Operational conditions	
Annual tonnage	2.50E4 to/year
Daily amount used at site	242.74 kg/day
Release times per year	365 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.100 %
Release fraction to wastewater from process	2 %
Release fraction to soil from process	0 %
Fraction tonnage to region	10 %
Fraction used at main source	3.544 % *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.* *Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges will be oxidized or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*

No direct discharge to freshwater compartment *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.*
Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.

9.8.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.8.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Freshwater	5.62E-6 mg/L	0.00135 mg/L	0.004162[1]	5.83E4
Marine water	0.000575 mg/L	0.00135 mg/L	0.425925[1]	569.911
Total result				
Freshwater	5.62E-6 mg/L	-	0.004162	5.83E4
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	0.000575 mg/L	-	0.425925	569.911
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.8.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Agricultural soil	0.000268 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.012141[1]	2.00E4
Total result				
Agricultural soil	0.000268 mg/kg_{dwt}	-	-	2.00E4

9.8.2 Contributing Scenario (2) controlling professional worker exposure for PROC 1 (PC 20, PC 21, PC 40)
9.8.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.003025[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	0.029804 mg/m³	47.6 mg/m³	0.000626[1]
Combined routes	0.024829 mg/kg_{bw}/day	-	0.003651
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000626
Combined routes	- mg/kg_{bw}/day	-	0.003651

9.8.3 Contributing Scenario (3) controlling professional worker exposure for PROC 1 (PC 20, PC 21, PC 40)

9.8.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.003025[1]
inhalation, long-term systemic	0.042578 mg/m³	47.6 mg/m³	0.000894[1]
Combined routes	0.026654 mg/kg_{bw}/day	-	0.00392
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000894
Combined routes	- mg/kg_{bw}/day	-	0.00392

9.8.4 Contributing Scenario (4) controlling professional worker exposure for PROC 1 (PC 20, PC 21, PC 40)

9.8.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.049674 mg/m³	47.6 mg/m³	0.001044[1]
Combined routes	0.041382 mg/kg$_{bw}$/day	-	0.006086
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.001044
Combined routes	- mg/kg$_{bw}$/day	-	0.006086

9.8.5 Contributing Scenario (5) controlling professional worker exposure for PROC 1 (PC 20, PC 21, PC 40)

9.8.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.070963 mg/m³	47.6 mg/m³	0.001491[1]
Combined routes	0.044423 mg/kg$_{bw}$/day	-	0.006533
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.001491
Combined routes	- mg/kg$_{bw}$/day	-	0.006533

9.8.6 Contributing Scenario (6) controlling professional worker exposure for PROC 15 (PC 20, PC 21, PC 40)

9.8.6.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No

Respiratory protection	no

9.8.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.247 mg/kg$_{bw}$/day	-	0.477495
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.477495

9.8.7 Contributing Scenario (7) controlling professional worker exposure for PROC 15 (PC 20, PC 21, PC 40)

9.8.7.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.335 mg/kg$_{bw}$/day	-	0.343322
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.343322

9.8.8 Contributing Scenario (8) controlling professional worker exposure for PROC 15 (PC 20, PC 21, PC 40)

9.8.8.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.342857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.05042[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	3.891 mg/kg$_{bw}$/day	-	0.572203
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.572203

9.8.9 Contributing Scenario (9) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.8.9.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.8.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.89 mg/kg$_{bw}$/day	-	0.572033
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.572033

9.8.10 Contributing Scenario (10) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	1 - 4 hours

Exposed skin surface	1,980 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.8.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	6.387 mg/m^3	47.6 mg/m^3	0.134173[1]
Combined routes	1.761 $mg/kg_{bw}/day$	-	0.258963
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.134173
Combined routes	- $mg/kg_{bw}/day$	-	0.258963

9.8.11 Contributing Scenario (11) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.8.11.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.8.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.977 $mg/kg_{bw}/day$	-	0.43786
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.31307
Combined routes	- $mg/kg_{bw}/day$	-	0.43786

9.8.12 Contributing Scenario (12) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.8.12.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.8.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.414 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.207983[1]
inhalation, long-term systemic	35.481 mg/m^3	47.6 mg/m^3	0.745404[1]
Combined routes	6.483 $mg/kg_{bw}/day$	-	0.953388
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.745404
Combined routes	- $mg/kg_{bw}/day$	-	0.953388

9.8.13 Contributing Scenario (13) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.8.13.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (inhalation 80 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.8.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.414 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.207983[1]
inhalation, long-term systemic	7.096 mg/m^3	47.6 mg/m^3	0.149081[1]
Combined routes	2.428 $mg/kg_{bw}/day$	-	0.357064
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.149081

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	- mg/kg$_{bw}$/day	-	0.357064

9.8.14 Contributing Scenario (14) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.8.14.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.8.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.414 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.207983[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.962 mg/kg$_{bw}$/day	-	0.729766
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.729766

9.8.15 Contributing Scenario (15) controlling professional worker exposure for PROC 2 (PC 20, PC 21, PC 40)

9.8.15.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.864 mg/kg$_{bw}$/day	-	0.568251

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.568251

9.8.16 Contributing Scenario (16) controlling professional worker exposure for PROC 2 (PC 20, PC 21, PC 40)

9.8.16.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.952 mg/kg$_{bw}$/day	-	0.434078
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.434078

9.8.17 Contributing Scenario (17) controlling professional worker exposure for PROC 2 (PC 20, PC 21, PC 40)

9.8.17.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	6.44 mg/kg$_{bw}$/day	-	0.947085
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.947085

9.8.18 Contributing Scenario (18) controlling professional worker exposure for PROC 2 (PC 20, PC 21, PC 40)

9.8.18.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.92 mg/kg$_{bw}$/day	-	0.723464
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.723464

9.8.19 Contributing Scenario (19) controlling professional worker exposure for PROC 3 (PC 20, PC 21, PC 40)

9.8.19.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	42.578 mg/m³	47.6 mg/m³	0.894485[1]
Combined routes	6.494 mg/kg$_{bw}$/day	-	0.95499
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.894485
Combined routes	- mg/kg$_{bw}$/day	-	0.95499

9.8.20 Contributing Scenario (20) controlling professional worker exposure for PROC 3 (PC 20, PC 21, PC 40)

9.8.20.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	29.804 mg/m³	47.6 mg/m³	0.62614[1]
Combined routes	4.669 mg/kg$_{bw}$/day	-	0.686644
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.62614
Combined routes	- mg/kg$_{bw}$/day	-	0.686644

9.8.21 Contributing Scenario (21) controlling professional worker exposure for PROC 3 (PC 20, PC 21, PC 40)

9.8.21.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.8.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.727 mg/kg$_{bw}$/day	-	0.548083
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.548083

9.8.22 Contributing Scenario (22) controlling professional worker exposure for PROC 3 (PC 20, PC 21, PC 40)

9.8.22.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	90 %

9.8.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	4.967 mg/m³	47.6 mg/m³	0.104357[1]
Combined routes	1.395 mg/kg$_{bw}$/day	-	0.205197
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.104357
Combined routes	- mg/kg$_{bw}$/day	-	0.205197

9.8.23 Contributing Scenario (23) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.8.23.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2

Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.8.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.952 mg/kg$_{bw}$/day	-	0.434078
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.434078

9.8.24 Contributing Scenario (24) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.8.24.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (inhalation 80 %; dermal 80 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.8.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.164571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.024202[1]
inhalation, long-term systemic	4.258 mg/m³	47.6 mg/m³	0.089449[1]
Combined routes	0.772821 mg/kg$_{bw}$/day	-	0.11365
Total result			
dermal	-	-	0.024202
inhalation	-	-	0.089449
Combined routes	- mg/kg$_{bw}$/day	-	0.11365

9.8.25 Contributing Scenario (25) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.8.25.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.8.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.952 $mg/kg_{bw}/day$	-	0.434078
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.31307
Combined routes	- $mg/kg_{bw}/day$	-	0.434078

9.8.26 Contributing Scenario (26) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.8.26.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.8.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	35.481 mg/m^3	47.6 mg/m^3	0.745404[1]
Combined routes	6.44 $mg/kg_{bw}/day$	-	0.947085
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.745404
Combined routes	- $mg/kg_{bw}/day$	-	0.947085

9.8.27 Contributing Scenario (27) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.8.27.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.8.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	2.892 $mg/kg_{bw}/day$	-	0.425302
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.425302

9.8.28 Contributing Scenario (28) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.8.28.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.8.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	24.837 mg/m^3	47.6 mg/m^3	0.521783[1]

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	4.92 mg/kg$_{bw}$/day	-	0.723464
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.723464

9.8.29 Contributing Scenario (29) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.8.29.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.8.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	6.208 mg/kg$_{bw}$/day	-	0.912881
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.912881

9.8.30 Contributing Scenario (30) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.8.30.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.8.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	2.71 mg/kg$_{bw}$/day	-	0.398552
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.398552

9.8.31 Contributing Scenario (31) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.8.31.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.8.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	5.277 mg/kg$_{bw}$/day	-	0.776064
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.776064

9.8.32 Contributing Scenario (32) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.8.32.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.8.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	4.517 mg/kg$_{bw}$/day	-	0.664253
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.664253

9.8.33 Contributing Scenario (33) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.8.33.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.8.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	4.517 mg/kg$_{bw}$/day	-	0.664253
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.664253

9.8.34 Contributing Scenario (34) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.8.34.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors

Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.8.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	5.385 mg/kg$_{bw}$/day	-	0.791872
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.791872

9.8.35 Contributing Scenario (35) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.8.35.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.8.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.8.36 Contributing Scenario (36) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.8.36.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)

Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.8.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	3.906 $mg/kg_{bw}/day$	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- $mg/kg_{bw}/day$	-	0.574383

9.8.37 Contributing Scenario (37) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.8.37.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.8.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	3.145 $mg/kg_{bw}/day$	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- $mg/kg_{bw}/day$	-	0.462572

9.8.38 Contributing Scenario (38) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.8.38.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.8.38.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	3.145 $mg/kg_{bw}/day$	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- $mg/kg_{bw}/day$	-	0.462572

9.9 Scenario ES 9: Anhydrous form: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (heat transfer fluid, e.g., refrigeration, cooling/heating systems) (ES-5 PROC 1, ES-5 PROC 15, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 20, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 9a, ES-5 ERC 9b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Anhydrous form: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (heat transfer fluid, e.g., refrigeration, cooling/heating systems) (ES-5 PROC 1, ES-5 PROC 15, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 20, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 9a, ES-5 ERC 9b)
Systematic title based on use descriptor	ERC 9A, 9B; PROC 1, 15, 19, 2, 20, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 9a Wide dispersive indoor use of substances in closed systems ERC 9b Wide dispersive outdoor use of substances in closed systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 15 - Use of laboratory reagents in small scale laboratories PROC 19 - Hand-mixing with intimate contact (only PPE available) PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 20 - Heat and pressure transfer fluids (closed systems) in dispersive use PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.9.1 Contributing Scenario (1) controlling environmental exposure for ERC 9A

9.9.1.1 Conditions of use

Operational conditions	
Annual tonnage	2.50E4 to/year
Daily amount used at site	242.74 kg/day
Release times per year	365 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	5 %
Release fraction to wastewater from process	0 %
Release fraction to soil from process	0 %
Fraction tonnage to region	10 %
Fraction used at main source	3.544 % *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter. Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges will be oxidized or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*

No direct discharge to freshwater compartment *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.* *Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.* *Use of substance as cooling agent. During normal operation of machinery containing substance, release of gazeous ammonia can be excluded. Should any release happen, release is to air only.*

9.9.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.9.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Freshwater	5.62E-6 mg/L	0.00135 mg/L	0.004162[1]	5.83E4
Marine water	5.28E-7 mg/L	0.00135 mg/L	0.000391[1]	6.21E5
Total result				
Freshwater	5.62E-6 mg/L	-	0.004162	5.83E4
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	5.28E-7 mg/L	-	0.000391	6.21E5
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.9.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Agricultural soil	0.000168 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.007584[1]	3.20E4
Total result				
Agricultural soil	0.000168 mg/kg_{dwt}	-	-	3.20E4

9.9.2 Contributing Scenario (2) controlling environmental exposure for ERC 9B
9.9.2.1 Conditions of use

Operational conditions	
Annual tonnage	2.50E4 to/year
Daily amount used at site	242.74 kg/day
Release times per year	365 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	5 %
Release fraction to wastewater from process	5 %
Release fraction to soil from process	0 %
Fraction tonnage to region	10 %

Fraction used at main source	3.544 % *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.* *Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges will be oxidized or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*
No direct discharge to freshwater compartment *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.* *Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.* *Use of substance as cooling agent. During normal operation of machinery containing substance, release of gazeous ammonia can be excluded. Should any release happen, release is to air only.*	

9.9.2.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.9.2.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Freshwater	5.62E-6 mg/L	0.00135 mg/L	0.004162[1]	5.83E4
Marine water	0.001437 mg/L	0.00135 mg/L	1.064[1]	228.09
Total result				
Freshwater	5.62E-6 mg/L	-	0.004162	5.83E4
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	0.001437 mg/L	-	1.064	228.09
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.9.2.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Agricultural soil	0.000419 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.018975[1]	1.28E4
Total result				
Agricultural soil	0.000419 mg/kg_{dwt}	-	-	1.28E4

9.9.3 Contributing Scenario (3) controlling professional worker exposure for PROC 1 (PC 16)

9.9.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.003025[1]
inhalation, long-term systemic	0.029804 mg/m^3	47.6 mg/m^3	0.000626[1]
Combined routes	0.024829 $mg/kg_{bw}/day$	-	0.003651
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000626
Combined routes	- $mg/kg_{bw}/day$	-	0.003651

9.9.4 Contributing Scenario (4) controlling professional worker exposure for PROC 1 (PC 16)

9.9.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.003025[1]
inhalation, long-term systemic	0.042578 mg/m^3	47.6 mg/m^3	0.000894[1]
Combined routes	0.026654 $mg/kg_{bw}/day$	-	0.00392
Total result			

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
dermal	-	-	0.003025
inhalation	-	-	0.000894
Combined routes	- mg/kg$_{bw}$/day	-	0.00392

9.9.5 Contributing Scenario (5) controlling professional worker exposure for PROC 1 (PC 16)

9.9.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.049674 mg/m³	47.6 mg/m³	0.001044[1]
Combined routes	0.041382 mg/kg$_{bw}$/day	-	0.006086
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.001044
Combined routes	- mg/kg$_{bw}$/day	-	0.006086

9.9.6 Contributing Scenario (6) controlling professional worker exposure for PROC 1 (PC 16)

9.9.6.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	0.070963 mg/m³	47.6 mg/m³	0.001491[1]
Combined routes	0.044423 mg/kg$_{bw}$/day	-	0.006533
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.001491
Combined routes	- mg/kg$_{bw}$/day	-	0.006533

9.9.7 Contributing Scenario (7) controlling professional worker exposure for PROC 15 (PC 16)

9.9.7.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.342857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.05042[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	3.891 mg/kg$_{bw}$/day	-	0.572203
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.572203

9.9.8 Contributing Scenario (8) controlling professional worker exposure for PROC 19 (PC 16)

9.9.8.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.9.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.89 mg/kg$_{bw}$/day	-	0.572033
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.572033

9.9.9 Contributing Scenario (9) controlling professional worker exposure for PROC 19 (PC 16)

9.9.9.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.9.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	1.761 mg/kg$_{bw}$/day	-	0.258963
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.258963

9.9.10 Contributing Scenario (10) controlling professional worker exposure for PROC 19 (PC 16)

9.9.10.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.9.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.977 mg/kg$_{bw}$/day	-	0.43786
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.43786

9.9.11 Contributing Scenario (11) controlling professional worker exposure for PROC 19 (PC 16)

9.9.11.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm²
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.9.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.414 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.207983[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	6.483 mg/kg$_{bw}$/day	-	0.953388
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.953388

9.9.12 Contributing Scenario (12) controlling professional worker exposure for PROC 19 (PC 16)

9.9.12.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm²

Location	indoors
Domain	professional
Local exhaust ventilation	yes (inhalation 80 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.9.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.414 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.207983[1]
inhalation, long-term systemic	7.096 mg/m³	47.6 mg/m³	0.149081[1]
Combined routes	2.428 mg/kg$_{bw}$/day	-	0.357064
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.149081
Combined routes	- mg/kg$_{bw}$/day	-	0.357064

9.9.13 Contributing Scenario (13) controlling professional worker exposure for PROC 19 (PC 16)

9.9.13.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm²
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.9.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.414 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.207983[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.962 mg/kg$_{bw}$/day	-	0.729766
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.729766

9.9.14 Contributing Scenario (14) controlling professional worker exposure for PROC 2 (PC 16)

9.9.14.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure

Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	21.289 mg/m^3	47.6 mg/m^3	0.447243[1]
Combined routes	3.864 $mg/kg_{bw}/day$	-	0.568251
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.447243
Combined routes	- $mg/kg_{bw}/day$	-	0.568251

9.9.15 Contributing Scenario (15) controlling professional worker exposure for PROC 2 (PC 16)

9.9.15.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.952 $mg/kg_{bw}/day$	-	0.434078
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.31307
Combined routes	- $mg/kg_{bw}/day$	-	0.434078

9.9.16 Contributing Scenario (16) controlling professional worker exposure for PROC 2 (PC 16)

9.9.16.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	35.481 mg/m^3	47.6 mg/m^3	0.745404[1]
Combined routes	6.44 $mg/kg_{bw}/day$	-	0.947085
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.745404
Combined routes	- $mg/kg_{bw}/day$	-	0.947085

9.9.17 Contributing Scenario (17) controlling professional worker exposure for PROC 2 (PC 16)

9.9.17.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	24.837 mg/m^3	47.6 mg/m^3	0.521783[1]
Combined routes	4.92 $mg/kg_{bw}/day$	-	0.723464
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.521783

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.723464

9.9.18 Contributing Scenario (18) controlling professional worker exposure for PROC 20 (PC 16)

9.9.18.1 Conditions of use

Name of contributing scenario	PROC 20 Heat and pressure transfer fluids in dispersive, professional use but closed systems
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.029 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.15126[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	4.07 mg/kg$_{bw}$/day	-	0.598503
Total result			
dermal	-	-	0.15126
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.598503

9.9.19 Contributing Scenario (19) controlling professional worker exposure for PROC 20 (PC 16)

9.9.19.1 Conditions of use

Name of contributing scenario	PROC 20 Heat and pressure transfer fluids in dispersive, professional use but closed systems
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.029 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.15126[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	3.157 mg/kg$_{bw}$/day	-	0.46433
Total result			
dermal	-	-	0.15126
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.46433

9.9.20 Contributing Scenario (20) controlling professional worker exposure for PROC 20 (PC 16)
9.9.20.1 Conditions of use

Name of contributing scenario	PROC 20 Heat and pressure transfer fluids in dispersive, professional use but closed systems
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.252101[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	6.783 mg/kg$_{bw}$/day	-	0.997505
Total result			
dermal	-	-	0.252101
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.997505

9.9.21 Contributing Scenario (21) controlling professional worker exposure for PROC 20 (PC 16)
9.9.21.1 Conditions of use

Name of contributing scenario	PROC 20 Heat and pressure transfer fluids in dispersive, professional use but closed systems
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.9.21.2 Exposure and risks for workers - for general information see Note 2 on COVERING PAGE**

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.252101[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	5.262 mg/kg$_{bw}$/day	-	0.773884
Total result			
dermal	-	-	0.252101
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.773884

9.9.22 Contributing Scenario (22) controlling professional worker exposure for PROC 8B (PC 16)

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm²
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.9.22.2 Exposure and risks for workers - for general information see Note 2 on COVERING PAGE**

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	6.208 mg/kg$_{bw}$/day	-	0.912881
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.912881

9.9.23 Contributing Scenario (23) controlling professional worker exposure for PROC 8B (PC 16)

9.9.23.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm²
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.9.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	2.71 mg/kg$_{bw}$/day	-	0.398552
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.398552

9.9.24 Contributing Scenario (24) controlling professional worker exposure for PROC 8B (PC 16)

9.9.24.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.9.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	5.277 mg/kg$_{bw}$/day	-	0.776064
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.776064

9.9.25 Contributing Scenario (25) controlling professional worker exposure for PROC 8B (PC 16)

9.9.25.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors

Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.9.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	4.517 mg/kg$_{bw}$/day	-	0.664253
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.664253

9.9.26 Contributing Scenario (26) controlling professional worker exposure for PROC 8B (PC 16)

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.9.26.2 Exposure and risks for workers - for general information see Note 2 on COVERING PAGE**

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	4.517 mg/kg$_{bw}$/day	-	0.664253
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.664253

9.9.27 Contributing Scenario (27) controlling professional worker exposure for PROC 9 (PC 16)

9.9.27.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)

Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.9.27.2 Exposure and risks for workers - for general information see Note 2 on COVERING PAGE**

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	31.933 mg/m^3	47.6 mg/m^3	0.670864[1]
Combined routes	5.385 $mg/kg_{bw}/day$	-	0.791872
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.670864
Combined routes	- $mg/kg_{bw}/day$	-	0.791872

9.9.28 Contributing Scenario (28) controlling professional worker exposure for PROC 9 (PC 16)

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.9.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.887 $mg/kg_{bw}/day$	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.277543

9.9.29 Contributing Scenario (29) controlling professional worker exposure for PROC 9 (PC 16)

9.9.29.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.9.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	3.906 $mg/kg_{bw}/day$	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- $mg/kg_{bw}/day$	-	0.574383

9.9.30 Contributing Scenario (30) controlling professional worker exposure for PROC 9 (PC 16)

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.9.30.2 Exposure and risks for workers - for general information see Note 2 on COVERING PAGE**

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	3.145 $mg/kg_{bw}/day$	-	0.462572
Total result			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.9.31 Contributing Scenario (31) controlling professional worker exposure for PROC 9 (PC 16)

9.9.31.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.9.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.11 Scenario ES 11: Anhydrous form: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (reactive agent/processing aid, general chemical applications, e.g., pH/neutralising agent, water treatment) (ES-5 PROC 1, ES-5 PROC 10, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 4, ES-5 PROC 8a, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b, ES-5 ERC 8e)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Anhydrous form: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (reactive agent/processing aid, general chemical applications, e.g., pH/neutralising agent, water treatment) (ES-5 PROC 1, ES-5 PROC 10, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 4, ES-5 PROC 8a, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b, ES-5 ERC 8e)
Systematic title based on use descriptor	ERC 8B, 8E; PROC 1, 10, 19, 2, 3, 4, 8A, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 8b Wide dispersive indoor use of reactive substances in open systems ERC 8e Wide dispersive outdoor use of reactive substances in open systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 10 - Roller application or brushing PROC 19 - Hand-mixing with intimate contact (only PPE available) PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.11.1 Contributing Scenario (1) controlling environmental exposure for ERC 8B

9.11.1.1 Conditions of use

Operational conditions	
Annual tonnage	2.50E4 to/year
Daily amount used at site	242.74 kg/day
Release times per year	365 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.100 %
Release fraction to wastewater from process	2 %
Release fraction to soil from process	0 %
Fraction tonnage to region	10 %
Fraction used at main source	3.544 % *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter. Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day

Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges will be oxidized or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*
No direct discharge to freshwater compartment *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.* *Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*	

9.11.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.11.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Freshwater	5.62E-6 mg/L	0.00135 mg/L	0.004162[1]	5.83E4
Marine water	0.000575 mg/L	0.00135 mg/L	0.425925[1]	569.911
Total result				
Freshwater	5.62E-6 mg/L	-	0.004162	5.83E4
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	0.000575 mg/L	-	0.425925	569.911
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.11.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Agricultural soil	0.000268 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.012141[1]	2.00E4
Total result				
Agricultural soil	0.000268 mg/kg_{dwt}	-	-	2.00E4

9.11.2 Contributing Scenario (2) controlling environmental exposure for ERC 8E
9.11.2.1 Conditions of use

Operational conditions	
Annual tonnage	2.50E4 to/year
Daily amount used at site	242.74 kg/day
Release times per year	365 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.100 %
Release fraction to wastewater from process	2 %
Release fraction to soil from process	0 %

Fraction tonnage to region	10 %
Fraction used at main source	3.544 % *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.* *Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges will be oxidized or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*
No direct discharge to freshwater compartment *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.* *Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*	

9.11.2.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.11.2.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Freshwater	5.62E-6 mg/L	0.00135 mg/L	0.004162[1]	5.83E4
Marine water	0.000575 mg/L	0.00135 mg/L	0.425925[1]	569.911
Total result				
Freshwater	5.62E-6 mg/L	-	0.004162	5.83E4
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	0.000575 mg/L	-	0.425925	569.911
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.11.2.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Agricultural soil	0.000268 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.012141[1]	2.00E4
Total result				
Agricultural soil	0.000268 mg/kg_{dwt}	-	-	2.00E4

9.11.3 Contributing Scenario (3) controlling professional worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.11.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.11.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.003025[1]
inhalation, long-term systemic	0.029804 mg/m^3	47.6 mg/m^3	0.000626[1]
Combined routes	0.024829 $mg/kg_{bw}/day$	-	0.003651
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000626
Combined routes	- $mg/kg_{bw}/day$	-	0.003651

9.11.4 Contributing Scenario (4) controlling professional worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.11.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.11.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.003025[1]
inhalation, long-term systemic	0.042578 mg/m^3	47.6 mg/m^3	0.000894[1]
Combined routes	0.026654 $mg/kg_{bw}/day$	-	0.00392
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000894

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.00392

9.11.5 Contributing Scenario (5) controlling professional worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.11.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.11.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.049674 mg/m³	47.6 mg/m³	0.001044[1]
Combined routes	0.041382 mg/kg$_{bw}$/day	-	0.006086
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.001044
Combined routes	- mg/kg$_{bw}$/day	-	0.006086

9.11.6 Contributing Scenario (6) controlling professional worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.11.6.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.11.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.070963 mg/m³	47.6 mg/m³	0.001491[1]
Combined routes	0.044423 mg/kg$_{bw}$/day	-	0.006533

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.001491
Combined routes	- mg/kg$_{bw}$/day	-	0.006533

9.11.7 Contributing Scenario (7) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.11.7.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.11.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	4.687 mg/kg$_{bw}$/day	-	0.689259
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.689259

9.11.8 Contributing Scenario (8) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.11.8.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.11.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	3.775 mg/kg$_{bw}$/day	-	0.555087
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.555087

9.11.9 Contributing Scenario (9) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.11.9.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.11.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	3.775 mg/kg$_{bw}$/day	-	0.555087
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.555087

9.11.10 Contributing Scenario (10) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

Name of contributing scenario	PROC 10 Roller application or brushing
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.11.10.2 Exposure and risks for workers - for general information see Note 2 on COVERING PAGE**

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	4.263 mg/kg$_{bw}$/day	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.626983

9.11.11 Contributing Scenario (11) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.11.11.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm²
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.11.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	4.263 mg/kg$_{bw}$/day	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.626983

9.11.12 Contributing Scenario (12) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.11.12.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm²

Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.11.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	6.291 mg/kg$_{bw}$/day	-	0.925144
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.925144

9.11.13 Contributing Scenario (13) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.11.13.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.11.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.89 mg/kg$_{bw}$/day	-	0.572033
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.572033

9.11.14 Contributing Scenario (14) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.11.14.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available

Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.11.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	6.387 mg/m^3	47.6 mg/m^3	0.134173[1]
Combined routes	1.761 $mg/kg_{bw}/day$	-	0.258963
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.134173
Combined routes	- $mg/kg_{bw}/day$	-	0.258963

9.11.15 Contributing Scenario (15) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.11.15.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.11.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.977 $mg/kg_{bw}/day$	-	0.43786
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.31307
Combined routes	- $mg/kg_{bw}/day$	-	0.43786

9.11.16 Contributing Scenario (16) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.11.16.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.11.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.414 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.207983[1]
inhalation, long-term systemic	35.481 mg/m^3	47.6 mg/m^3	0.745404[1]
Combined routes	6.483 $mg/kg_{bw}/day$	-	0.953388
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.745404
Combined routes	- $mg/kg_{bw}/day$	-	0.953388

9.11.17 Contributing Scenario (17) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.11.17.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (inhalation 80 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.11.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.414 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.207983[1]
inhalation, long-term systemic	7.096 mg/m^3	47.6 mg/m^3	0.149081[1]
Combined routes	2.428 $mg/kg_{bw}/day$	-	0.357064
Total result			
dermal	-	-	0.207983

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.149081
Combined routes	- mg/kg$_{bw}$/day	-	0.357064

9.11.18 Contributing Scenario (18) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.11.18.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.11.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.414 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.207983[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.962 mg/kg$_{bw}$/day	-	0.729766
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.729766

9.11.19 Contributing Scenario (19) controlling professional worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.11.19.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.11.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.864 mg/kg$_{bw}$/day	-	0.568251
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.568251

9.11.20 Contributing Scenario (20) controlling professional worker exposure for PROC 2 (PC 20, PC 37, PC 40)
9.11.20.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.11.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.952 mg/kg$_{bw}$/day	-	0.434078
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.434078

9.11.21 Contributing Scenario (21) controlling professional worker exposure for PROC 2 (PC 20, PC 37, PC 40)
9.11.21.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.11.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	6.44 mg/kg$_{bw}$/day	-	0.947085
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.947085

9.11.22 Contributing Scenario (22) controlling professional worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.11.22.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.11.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.92 mg/kg$_{bw}$/day	-	0.723464
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.723464

9.11.23 Contributing Scenario (23) controlling professional worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.11.23.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No

Respiratory protection	no

9.11.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	42.578 mg/m³	47.6 mg/m³	0.894485[1]
Combined routes	6.494 mg/kg$_{bw}$/day	-	0.95499
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.894485
Combined routes	- mg/kg$_{bw}$/day	-	0.95499

9.11.24 Contributing Scenario (24) controlling professional worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.11.24.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.11.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	29.804 mg/m³	47.6 mg/m³	0.62614[1]
Combined routes	4.669 mg/kg$_{bw}$/day	-	0.686644
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.62614
Combined routes	- mg/kg$_{bw}$/day	-	0.686644

9.11.25 Contributing Scenario (25) controlling professional worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.11.25.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Ventilation	enhanced (70%)

Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.11.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.727 mg/kg$_{bw}$/day	-	0.548083
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.548083

9.11.26 Contributing Scenario (26) controlling professional worker exposure for PROC 3 (PC 20, PC 37, PC 40)
9.11.26.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	90 %

9.11.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	4.967 mg/m³	47.6 mg/m³	0.104357[1]
Combined routes	1.395 mg/kg$_{bw}$/day	-	0.205197
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.104357
Combined routes	- mg/kg$_{bw}$/day	-	0.205197

9.11.27 Contributing Scenario (27) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)
9.11.27.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.11.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	31.933 mg/m^3	47.6 mg/m^3	0.670864[1]
Combined routes	5.385 $mg/kg_{bw}/day$	-	0.791872
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.670864
Combined routes	- $mg/kg_{bw}/day$	-	0.791872

9.11.28 Contributing Scenario (28) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.11.28.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.887 $mg/kg_{bw}/day$	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.11.29 Contributing Scenario (29) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.11.29.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.11.30 Contributing Scenario (30) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.11.30.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	5.322 mg/m³	47.6 mg/m³	0.111811[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	2.132 mg/kg$_{bw}$/day	-	0.313491
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.111811
Combined routes	- mg/kg$_{bw}$/day	-	0.313491

9.11.31 Contributing Scenario (31) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.11.31.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.11.32 Contributing Scenario (32) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.11.32.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	4.687 mg/kg$_{bw}$/day	-	0.689259
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.689259

9.11.33 Contributing Scenario (33) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.11.33.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	3.775 mg/kg$_{bw}$/day	-	0.555087
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.555087

9.11.34 Contributing Scenario (34) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.11.34.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	3.775 mg/kg$_{bw}$/day	-	0.555087
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.555087

9.11.35 Contributing Scenario (35) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.11.35.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	4.263 mg/kg$_{bw}$/day	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.626983

9.11.36 Contributing Scenario (36) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.11.36.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Duration of activity	> 4 hours (default)

Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	4.263 $mg/kg_{bw}/day$	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.626983

9.11.37 Contributing Scenario (37) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.11.37.1 Conditions of use

Name of contributing scenario	;
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	24.837 mg/m^3	47.6 mg/m^3	0.521783[1]
Combined routes	6.291 $mg/kg_{bw}/day$	-	0.925144
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.521783
Combined routes	- $mg/kg_{bw}/day$	-	0.925144

9.11.38 Contributing Scenario (38) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.11.38.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.11.38.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	31.933 mg/m^3	47.6 mg/m^3	0.670864[1]
Combined routes	6.208 $mg/kg_{bw}/day$	-	0.912881
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.670864
Combined routes	- $mg/kg_{bw}/day$	-	0.912881

9.11.39 Contributing Scenario (39) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.11.39.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.39.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	2.71 $mg/kg_{bw}/day$	-	0.398552
Total result			
dermal	-	-	0.242017

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.398552

9.11.40 Contributing Scenario (40) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.11.40.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.40.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	5.277 mg/kg$_{bw}$/day	-	0.776064
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.776064

9.11.41 Contributing Scenario (41) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.11.41.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.41.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	4.517 mg/kg$_{bw}$/day	-	0.664253
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.664253

9.11.42 Contributing Scenario (42) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.11.42.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.42.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	4.517 mg/kg$_{bw}$/day	-	0.664253
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.664253

9.11.43 Contributing Scenario (43) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.11.43.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.11.43.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	5.385 mg/kg$_{bw}$/day	-	0.791872
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.791872

9.11.44 Contributing Scenario (44) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.11.44.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.44.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.11.45 Contributing Scenario (45) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.11.45.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.45.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.11.46 Contributing Scenario (46) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.46.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.11.47 Contributing Scenario (47) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)

Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.11.47.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.13 Scenario ES 13: Distribution and formulation of ammonia aqueous up to 25% (ES-2 PROC 1, ES-2 PROC 15, ES-2 PROC 2, ES-2 PROC 3, ES-2 PROC 4, ES-2 PROC 8b, ES-2 PROC 9, ES-2)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Distribution and formulation of ammonia aqueous up to 25% (ES-2 PROC 1, ES-2 PROC 15, ES-2 PROC 2, ES-2 PROC 3, ES-2 PROC 4, ES-2 PROC 8b, ES-2 PROC 9, ES-2)
Systematic title based on use descriptor	ERC 2; PROC 1, 15, 2, 3, 4, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 2 Formulation of preparations
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 15 - Use of laboratory reagents in small scale laboratories PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.13.1 Contributing Scenario (1) controlling environmental exposure for ERC 2

9.13.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.83E6 to/year
Daily amount used at site	1,819.155 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.0025 %
Release fraction to wastewater from process	0.002 %

Release fraction to soil from process	0 %
Fraction tonnage to region	3.8 %
Fraction used at main source	0.49998 % *(Max. tonnage biggest customer: 3829950 tpa / 200 = 19149)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*
SpERC	NH4 - 2 (spERC -2 – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.5% (Default 100%). The substance is formulated by 200 companies indicating a fraction main source of 0.5%. Fraction tonnage to region: 3.8% (Default 100%). Ratio of total tonnage 382´9950 tpa to regional tonnage 1´000´000 tpa. Release to air: 0.0025% (Default: 2.5%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.02% (Default: 2%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 2/100 was used arbitrarily. Release to soil: 0% (Default: 0.01%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.13.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.13.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000057 mg/L	0.00135 mg/L	0.042038 [1]	4.33E4
Marine water	5.72E-6 mg/L	0.00135 mg/L	0.004238 [1]	4.29E5
Total result				
Freshwater	0.000057 mg/L	-	0.042038	4.33E4
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	5.72E-6 mg/L	-	0.004238	4.29E5
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.13.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000317 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.014354[1]	1.27E5
Total result				

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Agricultural soil	0.000317 mg/kg$_{dwt}$	-	-	1.27E5

9.13.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1

9.13.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	0.001788 mg/m³	47.6 mg/m³	0.000038[1]
Combined routes	0.012598 mg/kg$_{bw}$/day	-	0.001853
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000038
Combined routes	- mg/kg$_{bw}$/day	-	0.001853

9.13.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1

9.13.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	0.002555 mg/m³	47.6 mg/m³	0.000054[1]
Combined routes	0.012708 mg/kg$_{bw}$/day	-	0.001869
Total result			
dermal	-	-	0.001815

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.000054
Combined routes	- mg/kg$_{bw}$/day	-	0.001869

9.13.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1

9.13.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.13.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	0.002555 mg/m³	47.6 mg/m³	0.000054[1]
Combined routes	0.012708 mg/kg$_{bw}$/day	-	0.001869
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000054
Combined routes	- mg/kg$_{bw}$/day	-	0.001869

9.13.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1

9.13.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.13.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 1

9.13.6.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.13.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 1

9.13.7.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.13.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.13.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 15

9.13.8.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.123429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.018151[1]
inhalation, long-term systemic	12.773 mg/m³	47.6 mg/m³	0.268346[1]
Combined routes	1.948 mg/kg$_{bw}$/day	-	0.286497
Total result			
dermal	-	-	0.018151
inhalation	-	-	0.268346
Combined routes	- mg/kg$_{bw}$/day	-	0.286497

9.13.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 15

9.13.9.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.247 mg/kg$_{bw}$/day	-	0.477495
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.477495

9.13.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 15

9.13.10.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.13.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	1.277 mg/m³	47.6 mg/m³	0.026835[1]
Combined routes	0.194818 mg/kg$_{bw}$/day	-	0.02865
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.026835
Combined routes	- mg/kg$_{bw}$/day	-	0.02865

9.13.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 15

9.13.11.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.13.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.324696 mg/kg$_{bw}$/day	-	0.047749
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.047749

9.13.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 15

9.13.12.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.123429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.018151[1]
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	1.401 mg/kg$_{bw}$/day	-	0.205993
Total result			
dermal	-	-	0.018151
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.205993

9.13.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 15

9.13.13.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.335 mg/kg$_{bw}$/day	-	0.343322
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.343322

9.13.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 2

9.13.14.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	1.406 mg/kg$_{bw}$/day	-	0.206778
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.206778

9.13.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 2

9.13.15.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No

Respiratory protection	no

9.13.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.13.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 2

9.13.16.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.13.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.049371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.007261[1]
inhalation, long-term systemic	0.638663 mg/m³	47.6 mg/m³	0.013417[1]
Combined routes	0.140609 mg/kg$_{bw}$/day	-	0.020678
Total result			
dermal	-	-	0.007261
inhalation	-	-	0.013417
Combined routes	- mg/kg$_{bw}$/day	-	0.020678

9.13.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 2

9.13.17.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)

Protective gloves	No
Respiratory protection	no

9.13.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**Risk characterisation ratio = EC/DNEL**
25% aqueous Ammonia			
Ammonia NH4/NH3 aqua			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	1.064 mg/m³	47.6 mg/m³	0.022362[1]
Combined routes	0.234348 mg/kg$_{bw}$/day	-	0.034463
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.022362
Combined routes	- mg/kg$_{bw}$/day	-	0.034463

9.13.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 2

9.13.18.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	1.132 mg/kg$_{bw}$/day	-	0.166526
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.166526

9.13.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 2

9.13.19.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2

Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.13.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 3

9.13.20.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	12.773 mg/m³	47.6 mg/m³	0.268346[1]
Combined routes	2.072 mg/kg$_{bw}$/day	-	0.304648
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.268346
Combined routes	- mg/kg$_{bw}$/day	-	0.304648

9.13.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 3

9.13.21.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2

Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.13.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 3

9.13.22.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.13.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.024686 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00363[1]
inhalation, long-term systemic	1.277 mg/m³	47.6 mg/m³	0.026835[1]
Combined routes	0.207161 mg/kg$_{bw}$/day	-	0.030465
Total result			
dermal	-	-	0.00363
inhalation	-	-	0.026835
Combined routes	- mg/kg$_{bw}$/day	-	0.030465

9.13.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 3

9.13.23.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.13.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.041143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00605[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.345268 mg/kg$_{bw}$/day	-	0.050775
Total result			
dermal	-	-	0.00605
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.050775

9.13.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 3

9.13.24.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	1.524 mg/kg$_{bw}$/day	-	0.224144
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.224144

9.13.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 3

9.13.25.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2

Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.13.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.54 mg/kg$_{bw}$/day	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.373574

9.13.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 4

9.13.26.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.13.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	2.555 mg/m³	47.6 mg/m³	0.053669[1]
Combined routes	0.611807 mg/kg$_{bw}$/day	-	0.089972
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.053669
Combined routes	- mg/kg$_{bw}$/day	-	0.089972

9.13.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 4

9.13.27.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2

Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.13.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	4.258 mg/m³	47.6 mg/m³	0.089449[1]
Combined routes	1.02 mg/kg$_{bw}$/day	-	0.149953
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.089449
Combined routes	- mg/kg$_{bw}$/day	-	0.149953

9.13.28 Contributing Scenario (28) controlling industrial worker exposure for PROC 4

9.13.28.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.13.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.024686 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00363[1]
inhalation, long-term systemic	2.555 mg/m³	47.6 mg/m³	0.053669[1]
Combined routes	0.389636 mg/kg$_{bw}$/day	-	0.057299
Total result			
dermal	-	-	0.00363
inhalation	-	-	0.053669
Combined routes	- mg/kg$_{bw}$/day	-	0.057299

9.13.29 Contributing Scenario (29) controlling industrial worker exposure for PROC 4

9.13.29.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.13.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.041143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00605[1]
inhalation, long-term systemic	4.258 mg/m³	47.6 mg/m³	0.089449[1]
Combined routes	0.649393 mg/kg$_{bw}$/day	-	0.095499
Total result			
dermal	-	-	0.00605
inhalation	-	-	0.089449
Combined routes	- mg/kg$_{bw}$/day	-	0.095499

9.13.30 Contributing Scenario (30) controlling industrial worker exposure for PROC 4

9.13.30.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.13.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	1.788 mg/m³	47.6 mg/m³	0.037568[1]
Combined routes	0.502322 mg/kg$_{bw}$/day	-	0.073871
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.037568
Combined routes	- mg/kg$_{bw}$/day	-	0.073871

9.13.31 Contributing Scenario (31) controlling industrial worker exposure for PROC 4

9.13.31.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2

Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.13.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	2.98 mg/m³	47.6 mg/m³	0.062614[1]
Combined routes	0.837204 mg/kg$_{bw}$/day	-	0.123118
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.062614
Combined routes	- mg/kg$_{bw}$/day	-	0.123118

9.13.32 Contributing Scenario (32) controlling industrial worker exposure for PROC 8B

9.13.32.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.13.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	3.832 mg/m³	47.6 mg/m³	0.080504[1]
Combined routes	1.535 mg/kg$_{bw}$/day	-	0.225714
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.080504
Combined routes	- mg/kg$_{bw}$/day	-	0.225714

9.13.33 Contributing Scenario (33) controlling industrial worker exposure for PROC 8B

9.13.33.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2

Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.13.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	2.558 mg/kg$_{bw}$/day	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.37619

9.13.34 Contributing Scenario (34) controlling industrial worker exposure for PROC 8B

9.13.34.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.13.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.049371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.007261[1]
inhalation, long-term systemic	1.916 mg/m³	47.6 mg/m³	0.040252[1]
Combined routes	0.323084 mg/kg$_{bw}$/day	-	0.047512
Total result			
dermal	-	-	0.007261
inhalation	-	-	0.040252
Combined routes	- mg/kg$_{bw}$/day	-	0.047512

9.13.35 Contributing Scenario (35) controlling industrial worker exposure for PROC 8B

9.13.35.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.13.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	3.193 mg/m³	47.6 mg/m³	0.067086[1]
Combined routes	0.538473 mg/kg$_{bw}$/day	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- mg/kg$_{bw}$/day	-	0.079187

9.13.36 Contributing Scenario (36) controlling industrial worker exposure for PROC 8B

9.13.36.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.13.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	2.682 mg/m³	47.6 mg/m³	0.056353[1]
Combined routes	1.371 mg/kg$_{bw}$/day	-	0.201563
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.056353
Combined routes	- mg/kg$_{bw}$/day	-	0.201563

9.13.37 Contributing Scenario (37) controlling industrial worker exposure for PROC 8B

9.13.37.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2

Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.13.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	2.284 mg/kg$_{bw}$/day	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.335938

9.13.38 Contributing Scenario (38) controlling industrial worker exposure for PROC 9

9.13.38.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.13.38.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	5.109 mg/m³	47.6 mg/m³	0.107338[1]
Combined routes	1.224 mg/kg$_{bw}$/day	-	0.179943
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.107338
Combined routes	- mg/kg$_{bw}$/day	-	0.179943

9.13.39 Contributing Scenario (39) controlling industrial worker exposure for PROC 9

9.13.39.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2

Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.13.39.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]
Combined routes	2.039 mg/kg$_{bw}$/day	-	0.299905
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.299905

9.13.40 Contributing Scenario (40) controlling industrial worker exposure for PROC 9

9.13.40.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.13.40.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.049371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.007261[1]
inhalation, long-term systemic	5.109 mg/m³	47.6 mg/m³	0.107338[1]
Combined routes	0.779271 mg/kg$_{bw}$/day	-	0.114599
Total result			
dermal	-	-	0.007261
inhalation	-	-	0.107338
Combined routes	- mg/kg$_{bw}$/day	-	0.114599

9.13.41 Contributing Scenario (41) controlling industrial worker exposure for PROC 9

9.13.41.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.13.41.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]
Combined routes	1.299 mg/kg$_{bw}$/day	-	0.190998
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.190998

9.13.42 Contributing Scenario (42) controlling industrial worker exposure for PROC 9

9.13.42.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.13.42.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	3.577 mg/m³	47.6 mg/m³	0.075137[1]
Combined routes	1.005 mg/kg$_{bw}$/day	-	0.147742
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.075137
Combined routes	- mg/kg$_{bw}$/day	-	0.147742

9.13.43 Contributing Scenario (43) controlling industrial worker exposure for PROC 9

9.13.43.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2

Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.13.43.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	5.961 mg/m³	47.6 mg/m³	0.125228[1]
Combined routes	1.674 mg/kg$_{bw}$/day	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- mg/kg$_{bw}$/day	-	0.246236

9.13.44 Contributing Scenario (44) controlling industrial worker exposure for PROC 9

9.13.44.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.13.44.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	5.109 mg/m³	47.6 mg/m³	0.107338[1]
Combined routes	1.224 mg/kg$_{bw}$/day	-	0.179943
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.107338
Combined routes	- mg/kg$_{bw}$/day	-	0.179943

9.13.45 Contributing Scenario (45) controlling industrial worker exposure for PROC 9

9.13.45.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2

Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.13.45.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]
Combined routes	2.039 mg/kg$_{bw}$/day	-	0.299905
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.299905

9.13.46 Contributing Scenario (46) controlling industrial worker exposure for PROC 9

9.13.46.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.13.46.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.049371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.007261[1]
inhalation, long-term systemic	5.109 mg/m³	47.6 mg/m³	0.107338[1]
Combined routes	0.779271 mg/kg$_{bw}$/day	-	0.114599
Total result			
dermal	-	-	0.007261
inhalation	-	-	0.107338
Combined routes	- mg/kg$_{bw}$/day	-	0.114599

9.13.47 Contributing Scenario (47) controlling industrial worker exposure for PROC 9

9.13.47.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.13.47.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]
Combined routes	1.299 mg/kg$_{bw}$/day	-	0.190998
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.190998

9.13.48 Contributing Scenario (48) controlling industrial worker exposure for PROC 9

9.13.48.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.13.48.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	3.577 mg/m³	47.6 mg/m³	0.075137[1]
Combined routes	1.005 mg/kg$_{bw}$/day	-	0.147742
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.075137
Combined routes	- mg/kg$_{bw}$/day	-	0.147742

9.13.49 Contributing Scenario (49) controlling industrial worker exposure for PROC 9

9.13.49.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2

Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.13.49.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	5.961 mg/m³	47.6 mg/m³	0.125228[1]
Combined routes	1.674 mg/kg$_{bw}$/day	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- mg/kg$_{bw}$/day	-	0.246236

9.14 Scenario ES 14: Distribution and formulation of ammonia aqueous up to 35% (ES-2 PROC 1, ES-2 PROC 15, ES-2 PROC 2, ES-2 PROC 3, ES-2 PROC 8b, ES-2 PROC 9, ES-2)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Distribution and formulation of ammonia aqueous up to 35% (ES-2 PROC 1, ES-2 PROC 15, ES-2 PROC 2, ES-2 PROC 3, ES-2 PROC 8b, ES-2 PROC 9, ES-2)
Systematic title based on use descriptor	ERC 2; PROC 1, 15, 2, 3, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 2 Formulation of preparations
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 15 - Use of laboratory reagents in small scale laboratories PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.14.1 Contributing Scenario (1) controlling environmental exposure for ERC 2

9.14.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.83E6 to/year
Daily amount used at site	2,546.817 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.0025 %
Release fraction to wastewater from process	0.002 %
Release fraction to soil from process	0 %
Fraction tonnage to region	3.8 %
Fraction used at main source	0.49998 % *(Max. tonnage biggest customer: 3829950 tpa / 200 = 19149)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*

SpERC	NH4 - 2 (spERC -2 – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.5% (Default 100%). The substance is formulated by 200 companies indicating a fraction main source of 0.5%. Fraction tonnage to region: 3.8% (Default 100%). Ratio of total tonnage 3829950 tpa to regional tonnage 1000000 tpa. Release to air: 0.0025% (Default: 2.5%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.02% (Default: 2%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 2/100 was used arbitrarily. Release to soil: 0% (Default: 0.01%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.14.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.14.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000072 mg/L	0.00135 mg/L	0.052998[1]	4.81E4
Marine water	7.19E-6 mg/L	0.00135 mg/L	0.005326[1]	4.78E5
Total result				
Freshwater	0.000072 mg/L	-	0.052998	4.81E4
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	7.19E-6 mg/L	-	0.005326	4.78E5
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.14.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.00027 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.012216[1]	2.08E5
Total result				
Agricultural soil	0.00027 mg/kg_{dwt}	-	-	2.08E5

9.14.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1
9.14.2.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.14.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1

9.14.3.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.14.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1

9.14.4.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.14.4.2 Exposure and risks for workers- *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.14.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1

9.14.5.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.14.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 1

9.14.6.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.14.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 1

9.14.7.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.14.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.14.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 15

9.14.8.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.247 mg/kg$_{bw}$/day	-	0.477495
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.477495

9.14.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 15

9.14.9.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.342857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.05042[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.412 mg/kg$_{bw}$/day	-	0.795825
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.795825

9.14.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 15

9.14.10.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.14.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.324696 mg/kg$_{bw}$/day	-	0.047749
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.047749

9.14.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 15

9.14.11.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.14.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	3.548 mg/m³	47.6 mg/m³	0.07454[1]
Combined routes	0.541161 mg/kg$_{bw}$/day	-	0.079582
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.07454
Combined routes	- mg/kg$_{bw}$/day	-	0.079582

9.14.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 15

9.14.12.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.335 mg/kg$_{bw}$/day	-	0.343322
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.343322

9.14.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 15

9.14.13.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.342857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.05042[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	3.891 mg/kg$_{bw}$/day	-	0.572203
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.572203

9.14.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 2

9.14.14.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.14.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 2

9.14.15.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.14.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 2

9.14.16.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.14.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	1.064 mg/m³	47.6 mg/m³	0.022362[1]
Combined routes	0.234348 mg/kg$_{bw}$/day	-	0.034463
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.022362
Combined routes	- mg/kg$_{bw}$/day	-	0.034463

9.14.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 2

9.14.17.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.14.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	1.774 mg/m³	47.6 mg/m³	0.03727[1]
Combined routes	0.39058 mg/kg$_{bw}$/day	-	0.057438
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.03727
Combined routes	- mg/kg$_{bw}$/day	-	0.057438

9.14.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 2

9.14.18.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	No
Respiratory protection	no

9.14.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.14.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 2

9.14.19.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.14.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 3

9.14.20.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.14.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 3

9.14.21.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.754 mg/kg$_{bw}$/day	-	0.846245
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.846245

9.14.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 3

9.14.22.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.14.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.041143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00605[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.345268 mg/kg$_{bw}$/day	-	0.050775
Total result			
dermal	-	-	0.00605
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.050775

9.14.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 3

9.14.23.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.14.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.068571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.010084[1]
inhalation, long-term systemic	3.548 mg/m³	47.6 mg/m³	0.07454[1]
Combined routes	0.575446 mg/kg$_{bw}$/day	-	0.084624
Total result			
dermal	-	-	0.010084
inhalation	-	-	0.07454
Combined routes	- mg/kg$_{bw}$/day	-	0.084624

9.14.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 3

9.14.24.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours

Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.060504[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.54 $mg/kg_{bw}/day$	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- $mg/kg_{bw}/day$	-	0.373574

9.14.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 3

9.14.25.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.14.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.10084[1]
inhalation, long-term systemic	24.837 mg/m^3	47.6 mg/m^3	0.521783[1]
Combined routes	4.234 $mg/kg_{bw}/day$	-	0.622623
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.521783
Combined routes	- $mg/kg_{bw}/day$	-	0.622623

9.14.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 8B

9.14.26.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities

Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.14.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	6.387 mg/m^3	47.6 mg/m^3	0.134173[1]
Combined routes	2.558 $mg/kg_{bw}/day$	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- $mg/kg_{bw}/day$	-	0.37619

9.14.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 8B

9.14.27.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	>4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.14.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	4.263 $mg/kg_{bw}/day$	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.626983

9.14.28 Contributing Scenario (28) controlling industrial worker exposure for PROC 8B

9.14.28.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.14.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	3.193 mg/m^3	47.6 mg/m^3	0.067086[1]
Combined routes	0.538473 $mg/kg_{bw}/day$	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- $mg/kg_{bw}/day$	-	0.079187

9.14.29 Contributing Scenario (29) controlling industrial worker exposure for PROC 8B

9.14.29.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	>4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.14.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.020168[1]
inhalation, long-term systemic	5.322 mg/m^3	47.6 mg/m^3	0.111811[1]
Combined routes	0.897455 $mg/kg_{bw}/day$	-	0.131979
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.111811
Combined routes	- $mg/kg_{bw}/day$	-	0.131979

9.14.30 Contributing Scenario (30) controlling industrial worker exposure for PROC 8B

9.14.30.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.14.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	4.471 mg/m^3	47.6 mg/m^3	0.093921[1]
Combined routes	2.284 $mg/kg_{bw}/day$	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- $mg/kg_{bw}/day$	-	0.335938

9.14.31 Contributing Scenario (31) controlling industrial worker exposure for PROC 8B

9.14.31.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	>4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.14.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	3.807 $mg/kg_{bw}/day$	-	0.559896
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.559896

9.14.32 Contributing Scenario (32) controlling industrial worker exposure for PROC 9

9.14.32.1 Conditions of use

Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.14.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	8.516 mg/m^3	47.6 mg/m^3	0.178897[1]
Combined routes	2.039 $mg/kg_{bw}/day$	-	0.299905
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.178897
Combined routes	- $mg/kg_{bw}/day$	-	0.299905

9.14.33 Contributing Scenario (33) controlling industrial worker exposure for PROC 9

9.14.33.1 Conditions of use

Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.14.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	14.193 mg/m^3	47.6 mg/m^3	0.298162[1]
Combined routes	3.399 $mg/kg_{bw}/day$	-	0.499842
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.298162
Combined routes	- $mg/kg_{bw}/day$	-	0.499842

9.14.34 Contributing Scenario (34) controlling industrial worker exposure for PROC 9

9.14.34.1 Conditions of use

Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.14.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	8.516 mg/m^3	47.6 mg/m^3	0.178897[1]
Combined routes	1.299 $mg/kg_{bw}/day$	-	0.190998
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.178897
Combined routes	- $mg/kg_{bw}/day$	-	0.190998

9.14.35 Contributing Scenario (35) controlling industrial worker exposure for PROC 9

9.14.35.1 Conditions of use

Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.14.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.020168[1]
inhalation, long-term systemic	14.193 mg/m^3	47.6 mg/m^3	0.298162[1]
Combined routes	2.165 $mg/kg_{bw}/day$	-	0.31833
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.298162

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.31833

9.14.36 Contributing Scenario (36) controlling industrial worker exposure for PROC 9

9.14.36.1 Conditions of use

Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.14.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	5.961 mg/m³	47.6 mg/m³	0.125228[1]
Combined routes	1.674 mg/kg$_{bw}$/day	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- mg/kg$_{bw}$/day	-	0.246236

9.14.37 Contributing Scenario (37) controlling industrial worker exposure for PROC 9

9.14.37.1 Conditions of use

Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.14.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	9.935 mg/m³	47.6 mg/m³	0.208713[1]
Combined routes	2.791 mg/kg$_{bw}$/day	-	0.410394
Total result			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal	-	-	0.201681
inhalation	-	-	0.208713
Combined routes	- $mg/kg_{bw}/day$	-	0.410394

9.15 Scenario ES 15: Distribution and formulation of anhydrous ammonia (ES-2 PROC 1, ES-2 PROC 15, ES-2 PROC 2, ES-2 PROC 3, ES-2 PROC 8b, ES-2 PROC 9, ES-2)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Distribution and formulation of anhydrous ammonia (ES-2 PROC 1, ES-2 PROC 15, ES-2 PROC 2, ES-2 PROC 3, ES-2 PROC 8b, ES-2 PROC 9, ES-2)
Systematic title based on use descriptor	ERC 2; PROC 1, 15, 2, 3, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 2 Formulation of preparations
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 15 - Use of laboratory reagents in small scale laboratories PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.15.1 Contributing Scenario (1) controlling environmental exposure for ERC 2

9.15.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.83E6 to/year
Daily amount used at site	7,276.62 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.0025 %
Release fraction to wastewater from process	0.002 %
Release fraction to soil from process	0 %
Fraction tonnage to region	3.8 %
Fraction used at main source	0.49998 % *(Maximum tonnage biggest customer: 3829950 tpa / 200 = 19149)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil.* *Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*

SpERC	NH4 - 2 (spERC -2 – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.5% (Default 100%). The substance is formulated by 200 companies indicating a fraction main source of 0.5%. Fraction tonnage to region: 3.8% (Default 100%). Ratio of total tonnage 382´9950 tpa to regional tonnage 1´000´000 tpa. Release to air: 0.0025% (Default: 2.5%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.02% (Default: 2%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 2/100 was used arbitrarily. Release to soil: 0% (Default: 0.01%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).´

9.15.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a

9.15.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Freshwater	0.000178 mg/L	0.00135 mg/L	0.131724[1]	5.52E4
Marine water	0.000018 mg/L	0.00135 mg/L	0.013147[1]	5.53E5
Total result				
Freshwater	0.000178 mg/L	-	0.131724	5.52E4
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	0.000018 mg/L	-	0.013147	5.53E5
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.15.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Agricultural soil	0.000313 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.014163[1]	5.14E5
Total result				
Agricultural soil	0.000313 mg/kg_{dwt}	-	-	5.14E5

9.15.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1
9.15.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.15.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1

9.15.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.15.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1

9.15.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.15.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.15.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1

9.15.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.15.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 1

9.15.6.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.15.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 1

9.15.7.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.15.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.15.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 15

9.15.8.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.15.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.324696 mg/kg$_{bw}$/day	-	0.047749
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.047749

9.15.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 15

9.15.9.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.15.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	3.548 mg/m³	47.6 mg/m³	0.07454[1]
Combined routes	0.541161 mg/kg$_{bw}$/day	-	0.079582
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.07454
Combined routes	- mg/kg$_{bw}$/day	-	0.079582

9.15.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 15

9.15.10.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.335 mg/kg$_{bw}$/day	-	0.343322
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.343322

9.15.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 15

9.15.11.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.247 mg/kg$_{bw}$/day	-	0.477495
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.477495

9.15.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 15

9.15.12.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.342857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.05042[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	3.891 mg/kg$_{bw}$/day	-	0.572203
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.572203

9.15.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 15

9.15.13.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.342857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.05042[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.412 mg/kg$_{bw}$/day	-	0.795825
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.795825

9.15.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 2

9.15.14.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.15.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	1.064 mg/m³	47.6 mg/m³	0.022362[1]
Combined routes	0.234348 mg/kg$_{bw}$/day	-	0.034463
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.022362
Combined routes	- mg/kg$_{bw}$/day	-	0.034463

9.15.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 2

9.15.15.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.15.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	1.774 mg/m³	47.6 mg/m³	0.03727[1]
Combined routes	0.39058 mg/kg$_{bw}$/day	-	0.057438
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.03727
Combined routes	- mg/kg$_{bw}$/day	-	0.057438

9.15.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 2

9.15.16.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.15.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 2

9.15.17.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.15.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 2

9.15.18.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	No
Respiratory protection	no

9.15.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.15.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 2

9.15.19.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.15.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 3

9.15.20.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors

Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.15.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.041143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00605[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.345268 mg/kg$_{bw}$/day	-	0.050775
Total result			
dermal	-	-	0.00605
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.050775

9.15.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 3

9.15.21.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.15.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 3

9.15.22.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2

Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.15.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.754 mg/kg$_{bw}$/day	-	0.846245
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.846245

9.15.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 8B

9.15.23.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.15.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	2.558 mg/kg$_{bw}$/day	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.37619

9.15.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 8B

9.15.24.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)

Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.15.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	4.263 $mg/kg_{bw}/day$	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.626983

9.15.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 8B

9.15.25.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.15.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	3.193 mg/m^3	47.6 mg/m^3	0.067086[1]
Combined routes	0.538473 $mg/kg_{bw}/day$	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- $mg/kg_{bw}/day$	-	0.079187

9.15.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 8B

9.15.26.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities

Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.15.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.020168[1]
inhalation, long-term systemic	5.322 mg/m^3	47.6 mg/m^3	0.111811[1]
Combined routes	0.897455 $mg/kg_{bw}/day$	-	0.131979
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.111811
Combined routes	- $mg/kg_{bw}/day$	-	0.131979

9.15.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 8B

9.15.27.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.15.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	4.471 mg/m^3	47.6 mg/m^3	0.093921[1]
Combined routes	2.284 $mg/kg_{bw}/day$	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- $mg/kg_{bw}/day$	-	0.335938

9.15.28 Contributing Scenario (28) controlling industrial worker exposure for PROC 8B

9.15.28.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.15.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.403361[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	3.807 mg/kg_{bw}/day	-	0.559896
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.156535
Combined routes	- mg/kg_{bw}/day	-	0.559896

9.15.29 Contributing Scenario (29) controlling industrial worker exposure for PROC 9

9.15.29.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.15.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.121008[1]
inhalation, long-term systemic	8.516 mg/m^3	47.6 mg/m^3	0.178897[1]
Combined routes	2.039 mg/kg_{bw}/day	-	0.299905
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.178897
Combined routes	- mg/kg_{bw}/day	-	0.299905

9.15.30 Contributing Scenario (30) controlling industrial worker exposure for PROC 9

9.15.30.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.15.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	14.193 mg/m^3	47.6 mg/m^3	0.298162[1]
Combined routes	3.399 $mg/kg_{bw}/day$	-	0.499842
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.298162
Combined routes	- $mg/kg_{bw}/day$	-	0.499842

9.15.31 Contributing Scenario (31) controlling industrial worker exposure for PROC 9

9.15.31.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.15.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	8.516 mg/m^3	47.6 mg/m^3	0.178897[1]
Combined routes	1.299 $mg/kg_{bw}/day$	-	0.190998
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.178897
Combined routes	- $mg/kg_{bw}/day$	-	0.190998

9.15.32 Contributing Scenario (32) controlling industrial worker exposure for PROC 9

9.15.32.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.15.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.020168[1]
inhalation, long-term systemic	14.193 mg/m^3	47.6 mg/m^3	0.298162[1]
Combined routes	2.165 $mg/kg_{bw}/day$	-	0.31833
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.298162
Combined routes	- $mg/kg_{bw}/day$	-	0.31833

9.15.33 Contributing Scenario (33) controlling industrial worker exposure for PROC 9

9.15.33.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.15.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	5.961 mg/m^3	47.6 mg/m^3	0.125228[1]
Combined routes	1.674 $mg/kg_{bw}/day$	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- $mg/kg_{bw}/day$	-	0.246236

9.15.34 Contributing Scenario (34) controlling industrial worker exposure for PROC 9

9.15.34.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.15.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	9.935 mg/m^3	47.6 mg/m^3	0.208713[1]
Combined routes	2.791 $mg/kg_{bw}/day$	-	0.410394
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.208713
Combined routes	- $mg/kg_{bw}/day$	-	0.410394

9.15.35 Contributing Scenario (35) controlling industrial worker exposure for PROC 9

9.15.35.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.15.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	8.516 mg/m^3	47.6 mg/m^3	0.178897[1]
Combined routes	2.039 $mg/kg_{bw}/day$	-	0.299905
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.178897

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.299905

9.15.36 Contributing Scenario (36) controlling industrial worker exposure for PROC 9

9.15.36.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.15.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	14.193 mg/m³	47.6 mg/m³	0.298162[1]
Combined routes	3.399 mg/kg$_{bw}$/day	-	0.499842
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.298162
Combined routes	- mg/kg$_{bw}$/day	-	0.499842

9.15.37 Contributing Scenario (37) controlling industrial worker exposure for PROC 9

9.15.37.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.15.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]
Combined routes	1.299 mg/kg$_{bw}$/day	-	0.190998
Total result			

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
dermal	-	-	0.012101
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.190998

9.15.38 Contributing Scenario (38) controlling industrial worker exposure for PROC 9

9.15.38.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.15.38.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	14.193 mg/m³	47.6 mg/m³	0.298162[1]
Combined routes	2.165 mg/kg$_{bw}$/day	-	0.31833
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.298162
Combined routes	- mg/kg$_{bw}$/day	-	0.31833

9.15.39 Contributing Scenario (39) controlling industrial worker exposure for PROC 9

9.15.39.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.15.39.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	5.961 mg/m³	47.6 mg/m³	0.125228[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	1.674 mg/kg$_{bw}$/day	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- mg/kg$_{bw}$/day	-	0.246236

9.15.40 Contributing Scenario (40) controlling industrial worker exposure for PROC 9

9.15.40.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.15.40.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	9.935 mg/m³	47.6 mg/m³	0.208713[1]
Combined routes	2.791 mg/kg$_{bw}$/day	-	0.410394
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.208713
Combined routes	- mg/kg$_{bw}$/day	-	0.410394

9.17 Scenario ES 17: Industrial use of ammonia aqueous up to 25% as intermediate (ES-3 PROC 1, ES-3 PROC 15, ES-3 PROC 2, ES-3 PROC 3, ES-3 PROC 4, ES-3 PROC 8b, ES-3 PROC 9, ES-3)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Industrial use of ammonia aqueous up to 25% as intermediate (ES-3 PROC 1, ES-3 PROC 15, ES-3 PROC 2, ES-3 PROC 3, ES-3 PROC 4, ES-3 PROC 8b, ES-3 PROC 9, ES-3)
Systematic title based on use descriptor	ERC 6A; PROC 1, 15, 2, 3, 4, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 6a Industrial use of intermediates
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 15 - Use of laboratory reagents in small scale laboratories PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.17.1 Contributing Scenario (1) controlling environmental exposure for ERC 6A

9.17.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.83E6 to/year
Daily amount used at site	225.001 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.005 %
Release fraction to wastewater from process	0.020 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.500039 % *(Maximum tonnage biggest customer: 3829950 tpa / 200 = 19149)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*

SpERC	NH4 - 6a (spERC -6a – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.5% (Default 100%). The substance is industrially used by 200 companies indicating a fraction main source of 0.5%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 3829950 tpa to regional tonnage 800000 tpa. Release to air: 0.005% (Default: 5%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.02% (Default: 2%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 2/100 was used arbitrarily. Release to soil: 0% (Default: 0.1%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.17.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a

9.17.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000067 mg/L	0.00135 mg/L	0.049929[1]	4,506.384
Marine water	6.79E-6 mg/L	0.00135 mg/L	0.005027[1]	4.48E4
Total result				
Freshwater	0.000067 mg/L	-	0.049929	4,506.384
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	6.79E-6 mg/L	-	0.005027	4.48E4
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.17.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000287 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.012987[1]	1.73E4
Total result				
Agricultural soil	0.000287 mg/kg_{dwt}	-	-	1.73E4

9.17.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 19)
9.17.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	0.002555 mg/m³	47.6 mg/m³	0.000054[1]
Combined routes	0.012708 mg/kg$_{bw}$/day	-	0.001869
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000054
Combined routes	- mg/kg$_{bw}$/day	-	0.001869

9.17.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1 (PC 19)

9.17.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.17.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	0.002555 mg/m³	47.6 mg/m³	0.000054[1]
Combined routes	0.012708 mg/kg$_{bw}$/day	-	0.001869
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000054
Combined routes	- mg/kg$_{bw}$/day	-	0.001869

9.17.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1 (PC 19)

9.17.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.17.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1 (PC 19)

9.17.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.17.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 1 (PC 19)

9.17.6.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.17.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 1 (PC 19)

9.17.7.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.17.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.17.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 15 (PC 19)

9.17.8.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.123429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.018151[1]
inhalation, long-term systemic	12.773 mg/m³	47.6 mg/m³	0.268346[1]
Combined routes	1.948 mg/kg$_{bw}$/day	-	0.286497
Total result			
dermal	-	-	0.018151
inhalation	-	-	0.268346
Combined routes	- mg/kg$_{bw}$/day	-	0.286497

9.17.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 15 (PC 19)

9.17.9.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.247 mg/kg$_{bw}$/day	-	0.477495
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.477495

9.17.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 15 (PC 19)

9.17.10.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.17.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	1.277 mg/m³	47.6 mg/m³	0.026835[1]
Combined routes	0.194818 mg/kg$_{bw}$/day	-	0.02865
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.026835
Combined routes	- mg/kg$_{bw}$/day	-	0.02865

9.17.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 15 (PC 19)

9.17.11.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.17.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.324696 mg/kg$_{bw}$/day	-	0.047749
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.047749

9.17.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 15 (PC 19)

9.17.12.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.123429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.018151[1]
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	1.401 mg/kg$_{bw}$/day	-	0.205993
Total result			
dermal	-	-	0.018151
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.205993

9.17.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 15 (PC 19)

9.17.13.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.335 mg/kg$_{bw}$/day	-	0.343322
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.343322

9.17.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 2 (PC 19)

9.17.14.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	1.406 mg/kg$_{bw}$/day	-	0.206778
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.206778

9.17.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 2 (PC 19)

9.17.15.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.17.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 2 (PC 19)

9.17.16.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.17.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.049371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.007261[1]
inhalation, long-term systemic	0.638663 mg/m³	47.6 mg/m³	0.013417[1]
Combined routes	0.140609 mg/kg$_{bw}$/day	-	0.020678
Total result			
dermal	-	-	0.007261
inhalation	-	-	0.013417
Combined routes	- mg/kg$_{bw}$/day	-	0.020678

9.17.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 2 (PC 19)

9.17.17.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.17.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	1.064 mg/m³	47.6 mg/m³	0.022362[1]
Combined routes	0.234348 mg/kg$_{bw}$/day	-	0.034463
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.022362
Combined routes	- mg/kg$_{bw}$/day	-	0.034463

9.17.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 2 (PC 19)

9.17.18.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	No
Respiratory protection	no

9.17.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	1.132 mg/kg$_{bw}$/day	-	0.166526
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.166526

9.17.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 2 (PC 19)

9.17.19.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.17.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 3 (PC 19)

9.17.20.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	12.773 mg/m³	47.6 mg/m³	0.268346[1]
Combined routes	2.072 mg/kg$_{bw}$/day	-	0.304648
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.268346
Combined routes	- mg/kg$_{bw}$/day	-	0.304648

9.17.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 3 (PC 19)

9.17.21.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.17.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 3 (PC 19)

9.17.22.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.17.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.024686 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00363[1]
inhalation, long-term systemic	1.277 mg/m³	47.6 mg/m³	0.026835[1]
Combined routes	0.207161 mg/kg$_{bw}$/day	-	0.030465
Total result			
dermal	-	-	0.00363
inhalation	-	-	0.026835
Combined routes	- mg/kg$_{bw}$/day	-	0.030465

9.17.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 3 (PC 19)

9.17.23.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.17.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.041143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00605[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.345268 mg/kg$_{bw}$/day	-	0.050775
Total result			
dermal	-	-	0.00605
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.050775

9.17.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 3 (PC 19)

9.17.24.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours

Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.036303[1]
inhalation, long-term systemic	8.941 mg/m^3	47.6 mg/m^3	0.187842[1]
Combined routes	1.524 $mg/kg_{bw}/day$	-	0.224144
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.187842
Combined routes	- $mg/kg_{bw}/day$	-	0.224144

9.17.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 3 (PC 19)

9.17.25.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.17.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.060504[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.54 $mg/kg_{bw}/day$	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- $mg/kg_{bw}/day$	-	0.373574

9.17.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 4 (PC 19)

9.17.26.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises

Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.17.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.072605[1]
inhalation, long-term systemic	2.555 mg/m^3	47.6 mg/m^3	0.053669[1]
Combined routes	0.858664 $mg/kg_{bw}/day$	-	0.126274
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.053669
Combined routes	- $mg/kg_{bw}/day$	-	0.126274

9.17.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 4 (PC 19)

9.17.27.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.17.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	4.258 mg/m^3	47.6 mg/m^3	0.089449[1]
Combined routes	1.431 $mg/kg_{bw}/day$	-	0.210457
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.089449
Combined routes	- $mg/kg_{bw}/day$	-	0.210457

9.17.28 Contributing Scenario (28) controlling industrial worker exposure for PROC 4 (PC 19)

9.17.28.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.17.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.049371 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.007261[1]
inhalation, long-term systemic	2.555 mg/m³	47.6 mg/m³	0.053669[1]
Combined routes	0.414321 mg/kg_{bw}/day	-	0.06093
Total result			
dermal	-	-	0.007261
inhalation	-	-	0.053669
Combined routes	- mg/kg_{bw}/day	-	0.06093

9.17.29 Contributing Scenario (29) controlling industrial worker exposure for PROC 4 (PC 19)

9.17.29.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.17.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.012101[1]
inhalation, long-term systemic	4.258 mg/m³	47.6 mg/m³	0.089449[1]
Combined routes	0.690536 mg/kg_{bw}/day	-	0.101549
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.089449
Combined routes	- mg/kg_{bw}/day	-	0.101549

9.17.30 Contributing Scenario (30) controlling industrial worker exposure for PROC 4 (PC 19)

9.17.30.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.17.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.072605[1]
inhalation, long-term systemic	1.788 mg/m^3	47.6 mg/m^3	0.037568[1]
Combined routes	0.749179 $mg/kg_{bw}/day$	-	0.110173
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.037568
Combined routes	- $mg/kg_{bw}/day$	-	0.110173

9.17.31 Contributing Scenario (31) controlling industrial worker exposure for PROC 4 (PC 19)

9.17.31.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.17.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	2.98 mg/m^3	47.6 mg/m^3	0.062614[1]
Combined routes	1.249 $mg/kg_{bw}/day$	-	0.183622
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.062614
Combined routes	- $mg/kg_{bw}/day$	-	0.183622

9.17.32 Contributing Scenario (32) controlling industrial worker exposure for PROC 8B (PC 19)

9.17.32.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.17.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.14521[1]
inhalation, long-term systemic	3.832 mg/m^3	47.6 mg/m^3	0.080504[1]
Combined routes	1.535 $mg/kg_{bw}/day$	-	0.225714
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.080504
Combined routes	- $mg/kg_{bw}/day$	-	0.225714

9.17.33 Contributing Scenario (33) controlling industrial worker exposure for PROC 8B (PC 19)

9.17.33.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.17.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	6.387 mg/m^3	47.6 mg/m^3	0.134173[1]
Combined routes	2.558 $mg/kg_{bw}/day$	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- $mg/kg_{bw}/day$	-	0.37619

9.17.34 Contributing Scenario (34) controlling industrial worker exposure for PROC 8B (PC 19)

9.17.34.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.17.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.049371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.007261[1]
inhalation, long-term systemic	1.916 mg/m^3	47.6 mg/m^3	0.040252[1]
Combined routes	0.323084 $mg/kg_{bw}/day$	-	0.047512
Total result			
dermal	-	-	0.007261
inhalation	-	-	0.040252
Combined routes	- $mg/kg_{bw}/day$	-	0.047512

9.17.35 Contributing Scenario (35) controlling industrial worker exposure for PROC 8B (PC 19)

9.17.35.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.17.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	3.193 mg/m^3	47.6 mg/m^3	0.067086[1]
Combined routes	0.538473 $mg/kg_{bw}/day$	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.079187

9.17.36 Contributing Scenario (36) controlling industrial worker exposure for PROC 8B (PC 19)

9.17.36.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.17.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	2.682 mg/m³	47.6 mg/m³	0.056353[1]
Combined routes	1.371 mg/kg$_{bw}$/day	-	0.201563
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.056353
Combined routes	- mg/kg$_{bw}$/day	-	0.201563

9.17.37 Contributing Scenario (37) controlling industrial worker exposure for PROC 8B (PC 19)

9.17.37.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.17.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	2.284 mg/kg$_{bw}$/day	-	0.335938
Total result			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.335938

9.17.38 Contributing Scenario (38) controlling industrial worker exposure for PROC 9 (PC 19)

9.17.38.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.17.38.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	5.109 mg/m³	47.6 mg/m³	0.107338[1]
Combined routes	1.224 mg/kg$_{bw}$/day	-	0.179943
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.107338
Combined routes	- mg/kg$_{bw}$/day	-	0.179943

9.17.39 Contributing Scenario (39) controlling industrial worker exposure for PROC 9 (PC 19)

9.17.39.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.17.39.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	2.039 mg/kg$_{bw}$/day	-	0.299905
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.299905

9.17.40 Contributing Scenario (40) controlling industrial worker exposure for PROC 9 (PC 19)

9.17.40.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.17.40.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.049371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.007261[1]
inhalation, long-term systemic	5.109 mg/m³	47.6 mg/m³	0.107338[1]
Combined routes	0.779271 mg/kg$_{bw}$/day	-	0.114599
Total result			
dermal	-	-	0.007261
inhalation	-	-	0.107338
Combined routes	- mg/kg$_{bw}$/day	-	0.114599

9.17.41 Contributing Scenario (41) controlling industrial worker exposure for PROC 9 (PC 19)

9.17.41.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.17.41.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]
Combined routes	1.299 mg/kg$_{bw}$/day	-	0.190998
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.190998

9.17.42 Contributing Scenario (42) controlling industrial worker exposure for PROC 9 (PC 19)

9.17.42.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.17.42.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	3.577 mg/m³	47.6 mg/m³	0.075137[1]
Combined routes	1.005 mg/kg$_{bw}$/day	-	0.147742
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.075137
Combined routes	- mg/kg$_{bw}$/day	-	0.147742

9.17.43 Contributing Scenario (43) controlling industrial worker exposure for PROC 9 (PC 19)

9.17.43.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.17.43.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	5.961 mg/m³	47.6 mg/m³	0.125228[1]
Combined routes	1.674 mg/kg$_{bw}$/day	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- mg/kg$_{bw}$/day	-	0.246236

9.18 Scenario ES 18: Industrial use of ammonia aqueous up to 35% as intermediate (ES-3 PROC 1, ES-3 PROC 15, ES-3 PROC 2, ES-3 PROC 3, ES-3 PROC 8b, ES-3 PROC 9, ES-3)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Industrial use of ammonia aqueous up to 35% as intermediate (ES-3 PROC 1, ES-3 PROC 15, ES-3 PROC 2, ES-3 PROC 3, ES-3 PROC 8b, ES-3 PROC 9, ES-3)
Systematic title based on use descriptor	ERC 6A; PROC 1, 15, 2, 3, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 6a Industrial use of intermediates
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 15 - Use of laboratory reagents in small scale laboratories PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.18.1 Contributing Scenario (1) controlling environmental exposure for ERC 6A

9.18.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.83E6 to/year
Daily amount used at site	315.001 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.005 %
Release fraction to wastewater from process	0.020 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.500039 % *(Max. tonnage biggest customer: 3829950 tpa / 200 = 19149)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*

SpERC	NH4 - 6a (spERC -6a – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.5% (Default 100%). The substance is industrially used by 200 companies indicating a fraction main source of 0.5%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 3829950 tpa to region. tonnage 800000 tpa. Release to air: 0.005% (Default: 5%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.02% (Default: 2%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 2/100 was used arbitrarily. Release to soil: 0% (Default: 0.1%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.18.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.18.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000086 mg/L	0.00135 mg/L	0.064046[1]	4,918.365
Marine water	8.68E-6 mg/L	0.00135 mg/L	0.006431[1]	4.90E4
Total result				
Freshwater	0.000086 mg/L	-	0.064046	4,918.365
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	8.68E-6 mg/L	-	0.006431	4.90E4
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.18.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000228 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.010303[1]	3.06E4
Total result				
Agricultural soil	0.000228 mg/kg_{dwt}	-	-	3.06E4

9.18.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 19)
9.18.2.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.18.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1 (PC 19)

9.18.3.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.18.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.18.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1 (PC 19)

9.18.4.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.18.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1 (PC 19)

9.18.5.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.18.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 1 (PC 19)

9.18.6.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.18.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 1 (PC 19)

9.18.7.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.18.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.18.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 15 (PC 19)

9.18.8.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.247 mg/kg$_{bw}$/day	-	0.477495
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.477495

9.18.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 15 (PC 19)

9.18.9.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.342857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.05042[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.412 mg/kg$_{bw}$/day	-	0.795825
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.795825

9.18.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 15 (PC 19)

9.18.10.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.18.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.324696 mg/kg$_{bw}$/day	-	0.047749
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.047749

9.18.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 15 (PC 19)

9.18.11.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.18.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	3.548 mg/m³	47.6 mg/m³	0.07454[1]
Combined routes	0.541161 mg/kg$_{bw}$/day	-	0.079582
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.07454
Combined routes	- mg/kg$_{bw}$/day	-	0.079582

9.18.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 15 (PC 19)

9.18.12.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.335 mg/kg$_{bw}$/day	-	0.343322
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.343322

9.18.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 15 (PC 19)

9.18.13.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.342857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.05042[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	3.891 mg/kg$_{bw}$/day	-	0.572203
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.572203

9.18.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 2 (PC 19)

9.18.14.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.18.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 2 (PC 19)

9.18.15.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.18.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 2 (PC 19)

9.18.16.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.18.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	1.064 mg/m³	47.6 mg/m³	0.022362[1]
Combined routes	0.234348 mg/kg$_{bw}$/day	-	0.034463
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.022362
Combined routes	- mg/kg$_{bw}$/day	-	0.034463

9.18.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 2 (PC 19)

9.18.17.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.18.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	1.774 mg/m³	47.6 mg/m³	0.03727[1]
Combined routes	0.39058 mg/kg$_{bw}$/day	-	0.057438
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.03727
Combined routes	- mg/kg$_{bw}$/day	-	0.057438

9.18.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 2 (PC 19)

9.18.18.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	No
Respiratory protection	no

9.18.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.18.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 2 (PC 19)

9.18.19.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.18.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 3 (PC 19)

9.18.20.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.18.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 3 (PC 19)

9.18.21.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.754 mg/kg$_{bw}$/day	-	0.846245
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.846245

9.18.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 3 (PC 19)

9.18.22.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.18.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.041143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00605[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.345268 mg/kg$_{bw}$/day	-	0.050775
Total result			
dermal	-	-	0.00605
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.050775

9.18.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 3 (PC 19)

9.18.23.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.18.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.068571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.010084[1]
inhalation, long-term systemic	3.548 mg/m³	47.6 mg/m³	0.07454[1]
Combined routes	0.575446 mg/kg$_{bw}$/day	-	0.084624
Total result			
dermal	-	-	0.010084
inhalation	-	-	0.07454
Combined routes	- mg/kg$_{bw}$/day	-	0.084624

9.18.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 3 (PC 19)

9.18.24.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours

Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.060504[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.54 $mg/kg_{bw}/day$	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- $mg/kg_{bw}/day$	-	0.373574

9.18.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 3 (PC 19)

9.18.25.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.18.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.10084[1]
inhalation, long-term systemic	24.837 mg/m^3	47.6 mg/m^3	0.521783[1]
Combined routes	4.234 $mg/kg_{bw}/day$	-	0.622623
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.521783
Combined routes	- $mg/kg_{bw}/day$	-	0.622623

9.18.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 8B (PC 19)

9.18.26.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities

Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.18.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	6.387 mg/m^3	47.6 mg/m^3	0.134173[1]
Combined routes	2.558 $mg/kg_{bw}/day$	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- $mg/kg_{bw}/day$	-	0.37619

9.18.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 8B (PC 19)

9.18.27.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	>4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.18.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	4.263 $mg/kg_{bw}/day$	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.626983

9.18.28 Contributing Scenario (28) controlling industrial worker exposure for PROC 8B (PC 19)

9.18.28.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.18.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	3.193 mg/m^3	47.6 mg/m^3	0.067086[1]
Combined routes	0.538473 $mg/kg_{bw}/day$	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- $mg/kg_{bw}/day$	-	0.079187

9.18.29 Contributing Scenario (29) controlling industrial worker exposure for PROC 8B (PC 19)

9.18.29.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	>4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.18.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.020168[1]
inhalation, long-term systemic	5.322 mg/m^3	47.6 mg/m^3	0.111811[1]
Combined routes	0.897455 $mg/kg_{bw}/day$	-	0.131979
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.111811
Combined routes	- $mg/kg_{bw}/day$	-	0.131979

9.18.30 Contributing Scenario (30) controlling industrial worker exposure for PROC 8B (PC 19)

9.18.30.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.18.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	4.471 mg/m^3	47.6 mg/m^3	0.093921[1]
Combined routes	2.284 $mg/kg_{bw}/day$	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- $mg/kg_{bw}/day$	-	0.335938

9.18.31 Contributing Scenario (31) controlling industrial worker exposure for PROC 8B (PC 19)

9.18.31.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	>4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.18.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	3.807 $mg/kg_{bw}/day$	-	0.559896
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.559896

9.18.32 Contributing Scenario (32) controlling industrial worker exposure for PROC 9 (PC 19)

9.18.32.1 Conditions of use

Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.18.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	8.516 mg/m^3	47.6 mg/m^3	0.178897[1]
Combined routes	2.039 $mg/kg_{bw}/day$	-	0.299905
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.178897
Combined routes	- $mg/kg_{bw}/day$	-	0.299905

9.18.33 Contributing Scenario (33) controlling industrial worker exposure for PROC 9 (PC 19)

9.18.33.1 Conditions of use

Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.18.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	14.193 mg/m^3	47.6 mg/m^3	0.298162[1]
Combined routes	3.399 $mg/kg_{bw}/day$	-	0.499842
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.298162
Combined routes	- $mg/kg_{bw}/day$	-	0.499842

9.18.34 Contributing Scenario (34) controlling industrial worker exposure for PROC 9 (PC 19)

9.18.34.1 Conditions of use

Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.18.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	8.516 mg/m^3	47.6 mg/m^3	0.178897[1]
Combined routes	1.299 $mg/kg_{bw}/day$	-	0.190998
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.178897
Combined routes	- $mg/kg_{bw}/day$	-	0.190998

9.18.35 Contributing Scenario (35) controlling industrial worker exposure for PROC 9 (PC 19)

9.18.35.1 Conditions of use

Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.18.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.020168[1]
inhalation, long-term systemic	14.193 mg/m^3	47.6 mg/m^3	0.298162[1]
Combined routes	2.165 $mg/kg_{bw}/day$	-	0.31833
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.298162

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.31833

9.18.36 Contributing Scenario (36) controlling industrial worker exposure for PROC 9 (PC 19)

9.18.36.1 Conditions of use

Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.18.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	5.961 mg/m³	47.6 mg/m³	0.125228[1]
Combined routes	1.674 mg/kg$_{bw}$/day	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- mg/kg$_{bw}$/day	-	0.246236

9.18.37 Contributing Scenario (37) controlling industrial worker exposure for PROC 9 (PC 19)

9.18.37.1 Conditions of use

Name of contributing scenario	9 - Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.18.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	9.935 mg/m³	47.6 mg/m³	0.208713[1]
Combined routes	2.791 mg/kg$_{bw}$/day	-	0.410394
Total result			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal	-	-	0.201681
inhalation	-	-	0.208713
Combined routes	- mg/kg$_{bw}$/day	-	0.410394

9.19 Scenario ES 19: Industrial use of anhydrous ammonia as an intermediate (ES-3 PROC 1, ES-3 PROC 15, ES-3 PROC 2, ES-3 PROC 3, ES-3 PROC 8b, ES-3 PROC 9, ES-3)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Industrial use of anhydrous ammonia as an intermediate (ES-3 PROC 1, ES-3 PROC 15, ES-3 PROC 2, ES-3 PROC 3, ES-3 PROC 8b, ES-3 PROC 9, ES-3)
Systematic title based on use descriptor	ERC 6A; PROC 1, 15, 2, 3, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 6a Industrial use of intermediates
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 15 - Use of laboratory reagents in small scale laboratories PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.19.1 Contributing Scenario (1) controlling environmental exposure for ERC 6A

9.19.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.83E6 to/year
Daily amount used at site	900.003 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.005 %
Release fraction to wastewater from process	0.020 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.500039 % *(Max. tonnage biggest customer: 3829950 tpa / 200 = 19149)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*

SpERC	NH4 - 6a (spERC -6a – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.5% (Default 100%). The substance is industrially used by 200 companies indicating a fraction main source of 0.5%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 3829950 tpa to regional tonnage 800000tpa. Release to air: 0.005% (Default: 5%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.02% (Default: 2%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 2/100 was used arbitrarily. Release to soil: 0% (Default: 0.1%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.19.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.19.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Freshwater	0.000219 mg/L	0.00135 mg/L	0.161936[1]	5,557.755
Marine water	0.000022 mg/L	0.00135 mg/L	0.016168[1]	5.57E4
Total result				
Freshwater	0.000219 mg/L	-	0.161936	5,557.755
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	0.000022 mg/L	-	0.016168	5.57E4
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.19.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Agricultural soil	0.000204 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.009249[1]	9.73E4
Total result				
Agricultural soil	0.000204 mg/kg_{dwt}	-	-	9.73E4

9.19.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 19)
9.19.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.19.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1 (PC 19)

9.19.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.19.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.19.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1 (PC 19)

9.19.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.19.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1 (PC 19)

9.19.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.19.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 1 (PC 19)

9.19.6.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.19.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 1 (PC 19)

9.19.7.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.19.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.19.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 15 (PC 19)

9.19.8.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.247 mg/kg$_{bw}$/day	-	0.477495
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.477495

9.19.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 15 (PC 19)

9.19.9.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.342857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.05042[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.412 mg/kg$_{bw}$/day	-	0.795825
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.795825

9.19.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 15 (PC 19)

9.19.10.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.19.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.324696 mg/kg$_{bw}$/day	-	0.047749
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.047749

9.19.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 15 (PC 19)

9.19.11.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.19.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	3.548 mg/m³	47.6 mg/m³	0.07454[1]
Combined routes	0.541161 mg/kg$_{bw}$/day	-	0.079582
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.07454
Combined routes	- mg/kg$_{bw}$/day	-	0.079582

9.19.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 15 (PC 19)

9.19.12.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.335 mg/kg$_{bw}$/day	-	0.343322
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.343322

9.19.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 15 (PC 19)

9.19.13.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.342857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.05042[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	3.891 mg/kg$_{bw}$/day	-	0.572203
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.572203

9.19.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 2 (PC 19)

9.19.14.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.19.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 2 (PC 19)

9.19.15.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.19.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 2 (PC 19)

9.19.16.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.19.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	1.064 mg/m³	47.6 mg/m³	0.022362[1]
Combined routes	0.234348 mg/kg$_{bw}$/day	-	0.034463
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.022362
Combined routes	- mg/kg$_{bw}$/day	-	0.034463

9.19.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 2 (PC 19)

9.19.17.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.19.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	1.774 mg/m³	47.6 mg/m³	0.03727[1]
Combined routes	0.39058 mg/kg$_{bw}$/day	-	0.057438
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.03727
Combined routes	- mg/kg$_{bw}$/day	-	0.057438

9.19.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 2 (PC 19)

9.19.18.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	No
Respiratory protection	no

9.19.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.19.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 2 (PC 19)

9.19.19.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.19.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 3 (PC 19)

9.19.20.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.19.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 3 (PC 19)

9.19.21.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.754 mg/kg$_{bw}$/day	-	0.846245
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.846245

9.19.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 3 (PC 19)

9.19.22.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.19.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.041143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.00605[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.345268 mg/kg$_{bw}$/day	-	0.050775
Total result			
dermal	-	-	0.00605
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.050775

9.19.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 3 (PC 19)

9.19.23.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.19.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.068571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.010084[1]
inhalation, long-term systemic	3.548 mg/m³	47.6 mg/m³	0.07454[1]
Combined routes	0.575446 mg/kg$_{bw}$/day	-	0.084624
Total result			
dermal	-	-	0.010084
inhalation	-	-	0.07454
Combined routes	- mg/kg$_{bw}$/day	-	0.084624

9.19.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 3 (PC 19)

9.19.24.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	1 - 4 hours

Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.411429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.060504[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.54 $mg/kg_{bw}/day$	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- $mg/kg_{bw}/day$	-	0.373574

9.19.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 3 (PC 19)

9.19.25.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.19.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.685714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.10084[1]
inhalation, long-term systemic	24.837 mg/m^3	47.6 mg/m^3	0.521783[1]
Combined routes	4.234 $mg/kg_{bw}/day$	-	0.622623
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.521783
Combined routes	- $mg/kg_{bw}/day$	-	0.622623

9.19.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 8B (PC 19)

9.19.26.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours

Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.19.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	6.387 mg/m^3	47.6 mg/m^3	0.134173[1]
Combined routes	2.558 $mg/kg_{bw}/day$	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- $mg/kg_{bw}/day$	-	0.37619

9.19.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 8B (PC 19)

9.19.27.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.19.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	4.263 $mg/kg_{bw}/day$	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.626983

9.19.28 Contributing Scenario (28) controlling industrial worker exposure for PROC 8B (PC 19)

9.19.28.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.19.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	3.193 mg/m^3	47.6 mg/m^3	0.067086[1]
Combined routes	0.538473 $mg/kg_{bw}/day$	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- $mg/kg_{bw}/day$	-	0.079187

9.19.29 Contributing Scenario (29) controlling industrial worker exposure for PROC 8B (PC 19)

9.19.29.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.19.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.020168[1]
inhalation, long-term systemic	5.322 mg/m^3	47.6 mg/m^3	0.111811[1]
Combined routes	0.897455 $mg/kg_{bw}/day$	-	0.131979
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.111811
Combined routes	- $mg/kg_{bw}/day$	-	0.131979

9.19.30 Contributing Scenario (30) controlling industrial worker exposure for PROC 8B (PC 19)

9.19.30.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.19.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	4.471 mg/m^3	47.6 mg/m^3	0.093921[1]
Combined routes	2.284 $mg/kg_{bw}/day$	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- $mg/kg_{bw}/day$	-	0.335938

9.19.31 Contributing Scenario (31) controlling industrial worker exposure for PROC 8B (PC 19)

9.19.31.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.19.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	3.807 $mg/kg_{bw}/day$	-	0.559896
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.559896

9.19.32 Contributing Scenario (32) controlling industrial worker exposure for PROC 9 (PC 19)

9.19.32.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.19.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.121008[1]
inhalation, long-term systemic	8.516 mg/m^3	47.6 mg/m^3	0.178897[1]
Combined routes	2.039 mg/kg_{bw}/day	-	0.299905
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.178897
Combined routes	- mg/kg_{bw}/day	-	0.299905

9.19.33 Contributing Scenario (33) controlling industrial worker exposure for PROC 9 (PC 19)

9.19.33.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.19.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.201681[1]
inhalation, long-term systemic	14.193 mg/m^3	47.6 mg/m^3	0.298162[1]
Combined routes	3.399 mg/kg_{bw}/day	-	0.499842
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.298162
Combined routes	- mg/kg_{bw}/day	-	0.499842

9.19.34 Contributing Scenario (34) controlling industrial worker exposure for PROC 9 (PC 19)

9.19.34.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.19.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	8.516 mg/m^3	47.6 mg/m^3	0.178897[1]
Combined routes	1.299 $mg/kg_{bw}/day$	-	0.190998
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.178897
Combined routes	- $mg/kg_{bw}/day$	-	0.190998

9.19.35 Contributing Scenario (35) controlling industrial worker exposure for PROC 9 (PC 19)

9.19.35.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.19.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.020168[1]
inhalation, long-term systemic	14.193 mg/m^3	47.6 mg/m^3	0.298162[1]
Combined routes	2.165 $mg/kg_{bw}/day$	-	0.31833
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.298162

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.31833

9.19.36 Contributing Scenario (36) controlling industrial worker exposure for PROC 9 (PC 19)

9.19.36.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.19.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	5.961 mg/m³	47.6 mg/m³	0.125228[1]
Combined routes	1.674 mg/kg$_{bw}$/day	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- mg/kg$_{bw}$/day	-	0.246236

9.19.37 Contributing Scenario (37) controlling industrial worker exposure for PROC 9 (PC 19)

9.19.37.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.19.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	9.935 mg/m³	47.6 mg/m³	0.208713[1]
Combined routes	2.791 mg/kg$_{bw}$/day	-	0.410394
Total result			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal	-	-	0.201681
inhalation	-	-	0.208713
Combined routes	- $mg/kg_{bw}/day$	-	0.410394

9.20 Scenario ES 20: Manufacturing of anhydrous ammonia (ES-1 PROC 1, ES-1 PROC 15, ES-1 PROC 2, ES-1 PROC 8b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Manufacturing of anhydrous ammonia (ES-1 PROC 1, ES-1 PROC 15, ES-1 PROC 2, ES-1 PROC 8b)
Systematic title based on use descriptor	ERC 1; PROC 1, 15, 2, 8B
Name of contributing environmental scenario and corresponding ERC	ERC 1 Production of chemicals
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 15 - Use of laboratory reagents in small scale laboratories PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities

9.20.1 Contributing Scenario (1) controlling environmental exposure for ERC 1

9.20.1.1 Conditions of use

Operational conditions	
Annual tonnage	6.59E6 to/year
Daily amount used at site	7.36E4 kg/day
Release times per year	300 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.005 %
Release fraction to wastewater …	0.0001 %
Release fraction to soil from process	0 %
Fraction tonnage to region	6.7 %
Fraction used at main source	5 %
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % (justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)
SpERC	NH4 - 1 (spERC -1 – NH4 Release time per year: 300 (Default worst case) [20, 100, 300] Fraction main source: 5% (Default 100%). The substance is manufactured by 20 companies indicating a fraction main source of 5%. Fraction tonnage to region: 6.7% (Default 100%). Ratio of total tonnage 6591429 tpa to regional tonnage 950000tpa. Release to air: 0.005% (Default: 5%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0% (Default: 6%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. Release to soil: 0% (Default: 0.01%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.20.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.20.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Freshwater	0.000093 mg/L	0.00135 mg/L	0.068677[1]	1.07E6
Marine water	9.24E-6 mg/L	0.00135 mg/L	0.006842[1]	1.08E7
Total result				
Freshwater	0.000093 mg/L	-	0.068677	1.07E6
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	9.24E-6 mg/L	-	0.006842	1.08E7
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.20.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
Anhydrous (Ammonia NH4/NH3 anhydrous)				
Agricultural soil	0.008942 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.404632[1]	1.82E5
Total result				
Agricultural soil	0.008942 mg/kg_{dwt}	-	-	1.82E5

9.20.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1
9.20.2.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	No

9.20.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m^3	47.6 mg/m^3	0.000063[1]
Combined routes	0.020997 $mg/kg_{bw}/day$	-	0.003088
Total result			

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.20.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1

9.20.3.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.20.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.20.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1

9.20.4.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.20.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.20.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1

9.20.5.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.20.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.20.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 1

9.20.6.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.20.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.20.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 1

9.20.7.1 Conditions of use

Name of contributing scenario	1 - Use in closed process, no likelihood of exposure
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 0 %)
Protective gloves	No
Respiratory protection	no

9.20.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.20.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 15

9.20.8.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.20.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.342857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.05042[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.412 mg/kg$_{bw}$/day	-	0.795825
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.795825

9.20.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 15

9.20.9.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.20.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.342857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.05042[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	3.891 mg/kg$_{bw}$/day	-	0.572203
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.572203

9.20.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 15

9.20.10.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.20.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.247 mg/kg$_{bw}$/day	-	0.477495
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.477495

9.20.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 15

9.20.11.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.20.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.205714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.030252[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.335 mg/kg$_{bw}$/day	-	0.343322
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.343322

9.20.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 15

9.20.12.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	>4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.20.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	3.548 mg/m³	47.6 mg/m³	0.07454[1]
Combined routes	0.541161 mg/kg$_{bw}$/day	-	0.079582
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.07454
Combined routes	- mg/kg$_{bw}$/day	-	0.079582

9.20.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 15

9.20.13.1 Conditions of use

Name of contributing scenario	15 - Use of laboratory reagents in small scale laboratories
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.20.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	0.324696 mg/kg$_{bw}$/day	-	0.047749
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.047749

9.20.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 2

9.20.14.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.20.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.20.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 2

9.20.15.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.20.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.20.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 2

9.20.16.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.20.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.20.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 2

9.20.17.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.20.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.20.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 2

9.20.18.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	>4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No

Respiratory protection	no

9.20.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	1.774 mg/m³	47.6 mg/m³	0.03727[1]
Combined routes	0.39058 mg/kg$_{bw}$/day	-	0.057438
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.03727
Combined routes	- mg/kg$_{bw}$/day	-	0.057438

9.20.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 2

9.20.19.1 Conditions of use

Name of contributing scenario	2 - Use in closed, continuous process with occasional controlled exposure
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	No
Respiratory protection	no

9.20.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	1.064 mg/m³	47.6 mg/m³	0.022362[1]
Combined routes	0.234348 mg/kg$_{bw}$/day	-	0.034463
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.022362
Combined routes	- mg/kg$_{bw}$/day	-	0.034463

9.20.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 8B

9.20.20.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	>4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.20.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	4.263 mg/kg$_{bw}$/day	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.626983

9.20.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 8B

9.20.21.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.20.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	2.558 mg/kg$_{bw}$/day	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.37619

9.20.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 8B

9.20.22.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.20.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	2.284 mg/kg$_{bw}$/day	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.335938

9.20.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 8B

9.20.23.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	>4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.20.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	5.322 mg/m³	47.6 mg/m³	0.111811[1]
Combined routes	0.897455 mg/kg$_{bw}$/day	-	0.131979
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.111811
Combined routes	- mg/kg$_{bw}$/day	-	0.131979

9.20.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 8B

9.20.24.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.20.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	3.193 mg/m³	47.6 mg/m³	0.067086[1]
Combined routes	0.538473 mg/kg$_{bw}$/day	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- mg/kg$_{bw}$/day	-	0.079187

9.20.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 8B

9.20.25.1 Conditions of use

Name of contributing scenario	8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Duration of activity	>4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.20.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Anhydrous (Ammonia NH4/NH3 anhydrous)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	3.807 mg/kg$_{bw}$/day	-	0.559896
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.559896

COVERING PAGE - information applicable to all ESs listed below

Conditions of use common to all contributing scenarios (CSs) for following ES: 24, 26, 27, 30, 34

Name of contributing scenario	PROC relevant for CS
Exposure type	Inhalation: Long-term systemic; Dermal: Long-term systemic
Product characteristics	
Physical state	liquid
Concentration in substance	**>5-25%**
Max. conc. (ECETOC)	>25%
Fugacity / Dustiness	high
Frequency and duration of use	
Duration of activity	according to CS
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	according to CS
Other given operational conditions affecting workers exposure	
Location	according to CS
Domain	Industrial (unless otherwise stated as Professional for ES 8, 9, 11, 30, 34,42,45)
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	according to CS
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	according to CS
Respiratory protection	according to CS

Note 1
Explanations for the RCR assessment (Risk characterization ratio), listed in the following tables for individual ECs (marked with *):
[1] *Worst case result used for total RCR (Risk characterisation ratio), RCR <1 means safe use*
[2] *Part of additive RCR*
[3] *Worst case value, as dermal and inhalation RCRs are coming from different substances*

Note 2:
Information valid for all tables numbered 9.XX.XX.2 Exposure and risks for workers (XX – number of the given ES), (marked with **)
9.XX.XX.2 Exposure and risks for workers
The quantitative risk characterisation for this worker exposure has been calculated by EasyTRA.
The following table shows the exposure estimations via the dermal and inhalation route together with the total exposure of workers over all routes if applicable.

9.24 Scenario 24: Up to 25% aqueous: Industrial end-use of anhydrous and aqueous ammonia (flue gas NOx and SOx reduction) (ES-4 PROC 1, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Up to 25% aqueous: Industrial end-use of anhydrous and aqueous ammonia (flue gas NOx and SOx reduction) (ES-4 PROC 1, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b)
Systematic title based on use descriptor	ERC 6B; PROC 1, 19, 2, 3, 4, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 6b Industrial use of reactive processing aids
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 19 - Hand-mixing with intimate contact (only PPE available) PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.24.1 Contributing Scenario (1) controlling environmental exposure for ERC 6B

9.24.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.55E5 to/year
Daily amount used at site	10.41 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.0001 %
Release fraction to wastewater from process	0.050 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.249837 % *(justification: Maximum tonnage used for calculation of regional/continental PEC: 25000 tpa worst case)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*

SpERC	NH-4 - 6b (spERC -6b – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.25% (Default 100%). The substance is industrially used by 400 companies indicating a fraction main source of 0.25%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 354631 tpa to regional tonnage 25000 tpa. Release to air: 0.0001% (Default: 0.1%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.05% (Default: 5%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 5/100 = 0.05% was set arbitrarily. Release to soil: 0% (Default: 0.025%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.24.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.24.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000018 mg/L	0.00135 mg/L	0.013485[1]	772
Marine water	1.87E-6 mg/L	0.00135 mg/L	0.001383[1]	7,527.218
Total result				
Freshwater	0.000018 mg/L	-	0.013485	772
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	1.87E-6 mg/L	-	0.001383	7,527.218
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.24.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000277 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.012538[1]	830.298
Total result				
Agricultural soil	0.000277 mg/kg_{dwt}	-	-	830.298

9.24.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 0)
9.24.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	**>5-25%**
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	No
Respiratory protection	no

9.24.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	0.001788 mg/m³	47.6 mg/m³	0.000038[1]
Combined routes	0.012598 mg/kg$_{bw}$/day	-	0.001853
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000038
Combined routes	- mg/kg$_{bw}$/day	-	0.001853

9.24.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1 (PC 0)

9.24.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	**>5-25%**
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.24.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	0.002555 mg/m³	47.6 mg/m³	0.000054[1]
Combined routes	0.012708 mg/kg$_{bw}$/day	-	0.001869
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000054
Combined routes	- mg/kg$_{bw}$/day	-	0.001869

9.24.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1 (PC 0)

9.24.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2

Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.24.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.24.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1 (PC 0)

9.24.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.24.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.24.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 19

9.24.6.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available

Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.24.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	2.369 $mg/kg_{bw}/day$	-	0.348411
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.348411

9.24.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 19

9.24.7.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.*
Respiratory protection	no

9.24.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	2.369 $mg/kg_{bw}/day$	-	0.348411
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.348411

9.24.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 19

9.24.8.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.*
Respiratory protection	90 %

9.24.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.913 $mg/kg_{bw}/day$	-	0.281325
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.281325

9.24.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 19

9.24.9.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	no

9.24.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.509143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.074874[1]
inhalation, long-term systemic	6.387 mg/m^3	47.6 mg/m^3	0.134173[1]
Combined routes	1.422 $mg/kg_{bw}/day$	-	0.209047
Total result			
dermal	-	-	0.074874

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.209047

9.24.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 19

9.24.10.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	95 %

9.24.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.509143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.074874[1]
inhalation, long-term systemic	2.235 mg/m³	47.6 mg/m³	0.04696[1]
Combined routes	0.828474 mg/kg$_{bw}$/day	-	0.121834
Total result			
dermal	-	-	0.074874
inhalation	-	-	0.04696
Combined routes	- mg/kg$_{bw}$/day	-	0.121834

9.24.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 2

9.24.11.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.24.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.24.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 2

9.24.12.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.24.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.24.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 2

9.24.13.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.24.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	1.406 mg/kg$_{bw}$/day	-	0.206778
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.206778

9.24.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 2

9.24.14.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.24.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	1.132 mg/kg$_{bw}$/day	-	0.166526
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.166526

9.24.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 3

9.24.15.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No

Respiratory protection	no

9.24.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.24.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 3

9.24.16.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.24.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.54 mg/kg$_{bw}$/day	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.373574

9.24.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 3

9.24.17.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2

Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.24.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	12.773 mg/m³	47.6 mg/m³	0.268346[1]
Combined routes	2.072 mg/kg$_{bw}$/day	-	0.304648
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.268346
Combined routes	- mg/kg$_{bw}$/day	-	0.304648

9.24.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 3

9.24.18.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.24.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	1.524 mg/kg$_{bw}$/day	-	0.224144
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.224144

9.24.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 4

9.24.19.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises

Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.24.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.121008[1]
inhalation, long-term systemic	29.804 mg/m^3	47.6 mg/m^3	0.62614[1]
Combined routes	5.081 mg/kg_{bw}/day	-	0.747148
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.62614
Combined routes	- mg/kg_{bw}/day	-	0.747148

9.24.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 4

9.24.20.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.24.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.072605[1]
inhalation, long-term systemic	25.547 mg/m^3	47.6 mg/m^3	0.536691[1]
Combined routes	4.143 mg/kg_{bw}/day	-	0.609296
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.536691
Combined routes	- mg/kg_{bw}/day	-	0.609296

9.24.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 4

9.24.21.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.24.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.072605[1]
inhalation, long-term systemic	17.883 mg/m^3	47.6 mg/m^3	0.375684[1]
Combined routes	3.048 $mg/kg_{bw}/day$	-	0.448289
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.375684
Combined routes	- $mg/kg_{bw}/day$	-	0.448289

9.24.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 4

9.24.22.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.24.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	4.258 mg/m^3	47.6 mg/m^3	0.089449[1]
Combined routes	0.690536 $mg/kg_{bw}/day$	-	0.101549
Total result			
dermal	-	-	0.012101

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.089449
Combined routes	- mg/kg$_{bw}$/day	-	0.101549

9.24.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 8B

9.24.23.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.24.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	38.32 mg/m³	47.6 mg/m³	0.805037[1]
Combined routes	6.462 mg/kg$_{bw}$/day	-	0.950247
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.805037
Combined routes	- mg/kg$_{bw}$/day	-	0.950247

9.24.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 8B

9.24.24.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.24.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	26.824 mg/m³	47.6 mg/m³	0.563526[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	4.819 mg/kg$_{bw}$/day	-	0.708736
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.563526
Combined routes	- mg/kg$_{bw}$/day	-	0.708736

9.24.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 8B

9.24.25.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.24.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	2.558 mg/kg$_{bw}$/day	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.37619

9.24.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 8B

9.24.26.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.24.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	2.284 mg/kg$_{bw}$/day	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.335938

9.24.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 8B

9.24.27.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.24.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	3.193 mg/m³	47.6 mg/m³	0.067086[1]
Combined routes	0.538473 mg/kg$_{bw}$/day	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- mg/kg$_{bw}$/day	-	0.079187

9.24.28 Contributing Scenario (28) controlling industrial worker exposure for PROC 9

9.24.28.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %

Respiratory protection	no

9.24.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	35.765 mg/m³	47.6 mg/m³	0.751368[1]
Combined routes	5.603 mg/kg$_{bw}$/day	-	0.823973
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.751368
Combined routes	- mg/kg$_{bw}$/day	-	0.823973

9.24.29 Contributing Scenario (29) controlling industrial worker exposure for PROC 9

9.24.29.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.24.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]
Combined routes	2.039 mg/kg$_{bw}$/day	-	0.299905
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.299905

9.24.30 Contributing Scenario (30) controlling industrial worker exposure for PROC 9

9.24.30.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors

Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.24.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]
Combined routes	1.299 mg/kg$_{bw}$/day	-	0.190998
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.190998

9.24.31 Contributing Scenario (31) controlling industrial worker exposure for PROC 9

9.24.31.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.24.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	5.961 mg/m³	47.6 mg/m³	0.125228[1]
Combined routes	1.674 mg/kg$_{bw}$/day	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- mg/kg$_{bw}$/day	-	0.246236

9.24.32 Contributing Scenario (32) controlling industrial worker exposure for PROC 9

9.24.32.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours

Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.24.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.049371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.007261[1]
inhalation, long-term systemic	5.109 mg/m^3	47.6 mg/m^3	0.107338[1]
Combined routes	0.779271 $mg/kg_{bw}/day$	-	0.114599
Total result			
dermal	-	-	0.007261
inhalation	-	-	0.107338
Combined routes	- $mg/kg_{bw}/day$	-	0.114599

9.26 Scenario 26: Up to 25% aqueous: Industrial end-use of anhydrous and aqueous ammonia (processing, non-processing aids, auxiliary agent) (ES-4 PROC 1, ES-4 PROC 10, ES-4 PROC 13, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 5, ES-4 PROC 7, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Up to 25% aqueous: Industrial end-use of anhydrous and aqueous ammonia (processing, non-processing aids, auxiliary agent) (**ES-4** PROC 1, ES-4 PROC 10, ES-4 PROC 13, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 5, ES-4 PROC 7, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b)
Systematic title based on use descriptor	ERC 6B; PROC 1, 10, 13, 19, 2, 3, 4, 5, 7, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 6b Industrial use of reactive processing aids
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 10 - Roller application or brushing PROC 13 - Treatment of articles by dipping and pouring PROC 19 - Hand-mixing with intimate contact (only PPE available) PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 7 - Industrial spraying PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.26.1 Contributing Scenario (1) controlling environmental exposure for ERC 6B

9.26.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.55E5 to/year
Daily amount used at site	10.41 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.0001 %
Release fraction to wastewater from process	0.050 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.249837 % *(justification: Maximum tonnage used for calculation of regional/continental PEC: 25000 tpa worst case)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*

SpERC	NH-4 - 6b (spERC -6b – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.25% (Default 100%). The substance is industrially used by 400 companies indicating a fraction main source of 0.25%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 354631 tpa to regional tonnage 25000 tpa. Release to air: 0.0001% (Default: 0.1%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.05% (Default: 5%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 5/100 = 0.05% was set arbitrarily. Release to soil: 0% (Default: 0.025%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.26.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a

9.26.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000018 mg/L	0.00135 mg/L	0.013485[1]	772
Marine water	1.87E-6 mg/L	0.00135 mg/L	0.001383[1]	7,527.218
Total result				
Freshwater	0.000018 mg/L	-	0.013485	772
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	1.87E-6 mg/L	-	0.001383	7,527.218
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.26.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000277 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.012538[1]	830.298
Total result				
Agricultural soil	0.000277 mg/kg_{dwt}	-	-	830.298

9.26.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1
9.26.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No

Respiratory protection	no

9.26.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.001815[1]
inhalation, long-term systemic	0.001788 mg/m³	47.6 mg/m³	0.000038[1]
Combined routes	0.012598 mg/kg_{bw}/day	-	0.001853
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000038
Combined routes	- mg/kg_{bw}/day	-	0.001853

9.26.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1

9.26.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.26.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.001815[1]
inhalation, long-term systemic	0.002555 mg/m³	47.6 mg/m³	0.000054[1]
Combined routes	0.012708 mg/kg_{bw}/day	-	0.001869
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000054
Combined routes	- mg/kg_{bw}/day	-	0.001869

9.26.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1

9.26.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2

Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.26.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.26.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1

9.26.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.26.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.26.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 10

9.26.6.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing

Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.26.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	3.166 $mg/kg_{bw}/day$	-	0.465638
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.465638

9.26.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 10

9.26.7.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 0 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.26.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	3.166 $mg/kg_{bw}/day$	-	0.465638
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.465638

9.26.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 10

9.26.8.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 0 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.26.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.14521[1]
inhalation, long-term systemic	6.387 mg/m^3	47.6 mg/m^3	0.134173[1]
Combined routes	1.9 $mg/kg_{bw}/day$	-	0.279383
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.134173
Combined routes	- $mg/kg_{bw}/day$	-	0.279383

9.26.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 10

9.26.9.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.26.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	2.71 $mg/kg_{bw}/day$	-	0.398552
Total result			
dermal	-	-	0.242017

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.398552

9.26.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 10

9.26.10.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.26.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	1.626 mg/kg$_{bw}$/day	-	0.239131
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.239131

9.26.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 13

9.26.11.1 Conditions of use

Name of contributing scenario	PROC 13 Treatment of articles by dipping and pouring
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.26.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	3.166 mg/kg$_{bw}$/day	-	0.465638
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.465638

9.26.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 13

9.26.12.1 Conditions of use

Name of contributing scenario	PROC 13 Treatment of articles by dipping and pouring
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.26.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.164571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.024202[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	1.685 mg/kg$_{bw}$/day	-	0.247823
Total result			
dermal	-	-	0.024202
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.247823

9.26.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 13

9.26.13.1 Conditions of use

Name of contributing scenario	PROC 13 Treatment of articles by dipping and pouring
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.26.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.098743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.014521[1]
inhalation, long-term systemic	1.916 mg/m³	47.6 mg/m³	0.040252[1]
Combined routes	0.372455 mg/kg$_{bw}$/day	-	0.054773
Total result			
dermal	-	-	0.014521
inhalation	-	-	0.040252
Combined routes	- mg/kg$_{bw}$/day	-	0.054773

9.26.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 13

9.26.14.1 Conditions of use

Name of contributing scenario	PROC 13 Treatment of articles by dipping and pouring
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.26.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	1.626 mg/kg$_{bw}$/day	-	0.239131
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.239131

9.26.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 13

9.26.15.1 Conditions of use

Name of contributing scenario	PROC 13 Treatment of articles by dipping and pouring
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.26.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	2.71 mg/kg$_{bw}$/day	-	0.398552
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.398552

9.26.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 19

9.26.16.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.26.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.369 mg/kg$_{bw}$/day	-	0.348411
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.348411

9.26.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 19

9.26.17.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2

Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	no

9.26.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.509143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.074874[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	1.422 mg/kg$_{bw}$/day	-	0.209047
Total result			
dermal	-	-	0.074874
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.209047

9.26.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 19

9.26.18.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.*
Respiratory protection	no

9.26.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.369 mg/kg$_{bw}$/day	-	0.348411
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.348411

9.26.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 19

9.26.19.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%

Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.*
Respiratory protection	90 %

9.26.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.913 $mg/kg_{bw}/day$	-	0.281325
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.281325

9.26.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 19

9.26.20.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	95 %

9.26.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.509143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.074874[1]
inhalation, long-term systemic	2.235 mg/m^3	47.6 mg/m^3	0.04696[1]
Combined routes	0.828474 $mg/kg_{bw}/day$	-	0.121834
Total result			
dermal	-	-	0.074874
inhalation	-	-	0.04696
Combined routes	- $mg/kg_{bw}/day$	-	0.121834

9.26.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 2

9.26.21.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.26.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg_{bw}/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg_{bw}/day	-	0.34463

9.26.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 2

9.26.22.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.26.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.072605[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	1.406 mg/kg_{bw}/day	-	0.206778
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.134173
Combined routes	- mg/kg_{bw}/day	-	0.206778

9.26.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 2

9.26.23.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.26.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.887 $mg/kg_{bw}/day$	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.277543

9.26.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 2

9.26.24.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.26.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.072605[1]
inhalation, long-term systemic	4.471 mg/m^3	47.6 mg/m^3	0.093921[1]
Combined routes	1.132 $mg/kg_{bw}/day$	-	0.166526
Total result			
dermal	-	-	0.072605

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.166526

9.26.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 3

9.26.25.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.26.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.26.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 3

9.26.26.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.26.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	12.773 mg/m³	47.6 mg/m³	0.268346[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	2.072 mg/kg$_{bw}$/day	-	0.304648
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.268346
Combined routes	- mg/kg$_{bw}$/day	-	0.304648

9.26.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 3

9.26.27.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.26.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.54 mg/kg$_{bw}$/day	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.373574

9.26.28 Contributing Scenario (28) controlling industrial worker exposure for PROC 3

9.26.28.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.26.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	1.524 mg/kg$_{bw}$/day	-	0.224144
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.224144

9.26.29 Contributing Scenario (29) controlling industrial worker exposure for PROC 4

9.26.29.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.26.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	25.547 mg/m³	47.6 mg/m³	0.536691[1]
Combined routes	4.143 mg/kg$_{bw}$/day	-	0.609296
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.536691
Combined routes	- mg/kg$_{bw}$/day	-	0.609296

9.26.30 Contributing Scenario (30) controlling industrial worker exposure for PROC 4

9.26.30.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %

Respiratory protection	no

9.26.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	4.258 mg/m³	47.6 mg/m³	0.089449[1]
Combined routes	0.690536 mg/kg$_{bw}$/day	-	0.101549
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.089449
Combined routes	- mg/kg$_{bw}$/day	-	0.101549

9.26.31 Contributing Scenario (31) controlling industrial worker exposure for PROC 4

9.26.31.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.26.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	29.804 mg/m³	47.6 mg/m³	0.62614[1]
Combined routes	5.081 mg/kg$_{bw}$/day	-	0.747148
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.62614
Combined routes	- mg/kg$_{bw}$/day	-	0.747148

9.26.32 Contributing Scenario (32) controlling industrial worker exposure for PROC 4

9.26.32.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.26.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	17.883 mg/m³	47.6 mg/m³	0.375684[1]
Combined routes	3.048 mg/kg$_{bw}$/day	-	0.448289
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.375684
Combined routes	- mg/kg$_{bw}$/day	-	0.448289

9.26.33 Contributing Scenario (33) controlling industrial worker exposure for PROC 5

9.26.33.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.26.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.26.34 Contributing Scenario (34) controlling industrial worker exposure for PROC 5

9.26.34.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours

Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.26.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.049371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.007261[1]
inhalation, long-term systemic	6.387 mg/m^3	47.6 mg/m^3	0.134173[1]
Combined routes	0.961746 $mg/kg_{bw}/day$	-	0.141433
Total result			
dermal	-	-	0.007261
inhalation	-	-	0.134173
Combined routes	- $mg/kg_{bw}/day$	-	0.141433

9.26.35 Contributing Scenario (35) controlling industrial worker exposure for PROC 5

9.26.35.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.26.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	1.603 $mg/kg_{bw}/day$	-	0.235722
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.235722

9.26.36 Contributing Scenario (36) controlling industrial worker exposure for PROC 5

9.26.36.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)

Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.26.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.887 mg/kg_{bw}/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg_{bw}/day	-	0.277543

9.26.37 Contributing Scenario (37) controlling industrial worker exposure for PROC 5

9.26.37.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.26.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.072605[1]
inhalation, long-term systemic	4.471 mg/m^3	47.6 mg/m^3	0.093921[1]
Combined routes	1.132 mg/kg_{bw}/day	-	0.166526
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.093921
Combined routes	- mg/kg_{bw}/day	-	0.166526

9.26.38 Contributing Scenario (38) controlling industrial worker exposure for PROC 7

9.26.38.1 Conditions of use

Name of contributing scenario	PROC 7 Industrial spraying
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,500 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.26.38.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.128571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.018908[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	1.649 $mg/kg_{bw}/day$	-	0.242529
Total result			
dermal	-	-	0.018908
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.242529

9.26.39 Contributing Scenario (39) controlling industrial worker exposure for PROC 7

9.26.39.1 Conditions of use

Name of contributing scenario	PROC 7 Industrial spraying
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,500 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.26.39.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.077143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.011345[1]
inhalation, long-term systemic	6.387 mg/m^3	47.6 mg/m^3	0.134173[1]
Combined routes	0.989518 $mg/kg_{bw}/day$	-	0.145517
Total result			
dermal	-	-	0.011345
inhalation	-	-	0.134173

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	- mg/kg$_{bw}$/day	-	0.145517

9.26.40 Contributing Scenario (40) controlling industrial worker exposure for PROC 7

9.26.40.1 Conditions of use

Name of contributing scenario	PROC 7 Industrial spraying
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,500 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.26.40.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.128571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.018908[1]
inhalation, long-term systemic	1.064 mg/m³	47.6 mg/m³	0.022362[1]
Combined routes	0.280634 mg/kg$_{bw}$/day	-	0.04127
Total result			
dermal	-	-	0.018908
inhalation	-	-	0.022362
Combined routes	- mg/kg$_{bw}$/day	-	0.04127

9.26.41 Contributing Scenario (41) controlling industrial worker exposure for PROC 7

9.26.41.1 Conditions of use

Name of contributing scenario	PROC 7 Industrial spraying
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,500 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.26.41.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.077143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.011345[1]
inhalation, long-term systemic	0.638663 mg/m³	47.6 mg/m³	0.013417[1]
Combined routes	0.16838 mg/kg$_{bw}$/day	-	0.024762

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Total result			
dermal	-	-	0.011345
inhalation	-	-	0.013417
Combined routes	- mg/kg$_{bw}$/day	-	0.024762

9.26.42 Contributing Scenario (42) controlling industrial worker exposure for PROC 7

9.26.42.1 Conditions of use

Name of contributing scenario	PROC 7 Industrial spraying
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,500 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.26.42.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.543 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.226891[1]
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	2.82 mg/kg$_{bw}$/day	-	0.414733
Total result			
dermal	-	-	0.226891
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.414733

9.26.43 Contributing Scenario (43) controlling industrial worker exposure for PROC 7

9.26.43.1 Conditions of use

Name of contributing scenario	PROC 7 Industrial spraying
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,500 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.26.43.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal, long-term systemic	2.571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.378151[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	4.7 mg/kg$_{bw}$/day	-	0.691221
Total result			
dermal	-	-	0.378151
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.691221

9.26.44 Contributing Scenario (44) controlling industrial worker exposure for PROC 8B

9.26.44.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.26.44.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	38.32 mg/m³	47.6 mg/m³	0.805037[1]
Combined routes	6.462 mg/kg$_{bw}$/day	-	0.950247
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.805037
Combined routes	- mg/kg$_{bw}$/day	-	0.950247

9.26.45 Contributing Scenario (45) controlling industrial worker exposure for PROC 8B

9.26.45.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.26.45.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	2.558 mg/kg$_{bw}$/day	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.37619

9.26.46 Contributing Scenario (46) controlling industrial worker exposure for PROC 8B

9.26.46.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm²
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.26.46.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	3.193 mg/m³	47.6 mg/m³	0.067086[1]
Combined routes	0.538473 mg/kg$_{bw}$/day	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- mg/kg$_{bw}$/day	-	0.079187

9.26.47 Contributing Scenario (47) controlling industrial worker exposure for PROC 8B

9.26.47.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm²
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.26.47.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	2.284 mg/kg$_{bw}$/day	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.335938

9.26.48 Contributing Scenario (48) controlling industrial worker exposure for PROC 8B

9.26.48.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.26.48.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	26.824 mg/m³	47.6 mg/m³	0.563526[1]
Combined routes	4.819 mg/kg$_{bw}$/day	-	0.708736
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.563526
Combined routes	- mg/kg$_{bw}$/day	-	0.708736

9.26.49 Contributing Scenario (49) controlling industrial worker exposure for PROC 9

9.26.49.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.26.49.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]
Combined routes	2.039 mg/kg$_{bw}$/day	-	0.299905
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.299905

9.26.50 Contributing Scenario (50) controlling industrial worker exposure for PROC 9

9.26.50.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.26.50.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	8.516 mg/m³	47.6 mg/m³	0.178897[1]
Combined routes	1.299 mg/kg$_{bw}$/day	-	0.190998
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.178897
Combined routes	- mg/kg$_{bw}$/day	-	0.190998

9.26.51 Contributing Scenario (51) controlling industrial worker exposure for PROC 9

9.26.51.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours

Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.26.51.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.049371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.007261[1]
inhalation, long-term systemic	5.109 mg/m^3	47.6 mg/m^3	0.107338[1]
Combined routes	0.779271 $mg/kg_{bw}/day$	-	0.114599
Total result			
dermal	-	-	0.007261
inhalation	-	-	0.107338
Combined routes	- $mg/kg_{bw}/day$	-	0.114599

9.26.52 Contributing Scenario (52) controlling industrial worker exposure for PROC 9

9.26.52.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.26.52.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	5.961 mg/m^3	47.6 mg/m^3	0.125228[1]
Combined routes	1.674 $mg/kg_{bw}/day$	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- $mg/kg_{bw}/day$	-	0.246236

9.26.53 Contributing Scenario (53) controlling industrial worker exposure for PROC 9

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%

Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.26.53.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.072605[1]
inhalation, long-term systemic	35.765 mg/m^3	47.6 mg/m^3	0.751368[1]
Combined routes	5.603 $mg/kg_{bw}/day$	-	0.823973
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.751368
Combined routes	- $mg/kg_{bw}/day$	-	0.823973

9.27 Scenario 27: Up to 25% aqueous: Industrial end-use of anhydrous and aqueous ammonia (reactive agent/processing aid and for general chemical applications, e.g., extraction, water treatment/septicity control, pH/neutralising agent) (ES-4 PROC 1, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Up to 25% aqueous: Industrial end-use of anhydrous and aqueous ammonia (reactive agent/processing aid and for general chemical applications, e.g., extraction, water treatment/septicity control, pH/neutralising agent) (ES-4 PROC 1, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b)
Systematic title based on use descriptor	ERC 6B; PROC 1, 2, 3, 4, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 6b Industrial use of reactive processing aids
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.27.1 Contributing Scenario (1) controlling environmental exposure for ERC 6B

9.27.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.55E5 to/year
Daily amount used at site	10.41 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.0001 %
Release fraction to wastewater from process	0.050 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.249837 % *(justification: Maximum tonnage used for calculation of regional/continental PEC: 25000 tpa worst case)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*

SpERC	NH-4 - 6b (spERC -6b – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.25% (Default 100%). The substance is industrially used by 400 companies indicating a fraction main source of 0.25%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 354631 tpa to regional tonnage 25000 tpa. Release to air: 0.0001% (Default: 0.1%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.05% (Default: 5%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 5/100 = 0.05% was set arbitrarily. Release to soil: 0% (Default: 0.025%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.27.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.27.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000018 mg/L	0.00135 mg/L	0.013485[1]	772
Marine water	1.87E-6 mg/L	0.00135 mg/L	0.001383[1]	7,527.218
Total result				
Freshwater	0.000018 mg/L	-	0.013485	772
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	1.87E-6 mg/L	-	0.001383	7,527.218
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.27.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000277 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.012538[1]	830.298
Total result				
Agricultural soil	0.000277 mg/kg_{dwt}	-	-	830.298

9.27.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)
9.27.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No

Respiratory protection	no

9.27.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	0.001788 mg/m³	47.6 mg/m³	0.000038[1]
Combined routes	0.012598 mg/kg$_{bw}$/day	-	0.001853
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000038
Combined routes	- mg/kg$_{bw}$/day	-	0.001853

9.27.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.27.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.27.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	0.002555 mg/m³	47.6 mg/m³	0.000054[1]
Combined routes	0.012708 mg/kg$_{bw}$/day	-	0.001869
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000054
Combined routes	- mg/kg$_{bw}$/day	-	0.001869

9.27.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.27.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.27.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.27.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.27.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.27.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.27.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.27.6.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)

Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.27.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	2.343 $mg/kg_{bw}/day$	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.34463

9.27.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.27.7.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.27.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.072605[1]
inhalation, long-term systemic	6.387 mg/m^3	47.6 mg/m^3	0.134173[1]
Combined routes	1.406 $mg/kg_{bw}/day$	-	0.206778
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.134173
Combined routes	- $mg/kg_{bw}/day$	-	0.206778

9.27.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.27.8.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure

Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.27.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.887 $mg/kg_{bw}/day$	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.277543

9.27.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.27.9.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.27.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.072605[1]
inhalation, long-term systemic	4.471 mg/m^3	47.6 mg/m^3	0.093921[1]
Combined routes	1.132 $mg/kg_{bw}/day$	-	0.166526
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.093921
Combined routes	- $mg/kg_{bw}/day$	-	0.166526

9.27.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.27.10.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.27.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.060504[1]
inhalation, long-term systemic	21.289 mg/m^3	47.6 mg/m^3	0.447243[1]
Combined routes	3.453 $mg/kg_{bw}/day$	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- $mg/kg_{bw}/day$	-	0.507747

9.27.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.27.11.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.27.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.036303[1]
inhalation, long-term systemic	12.773 mg/m^3	47.6 mg/m^3	0.268346[1]
Combined routes	2.072 $mg/kg_{bw}/day$	-	0.304648
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.268346

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.304648

9.27.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.27.12.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.27.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.54 mg/kg$_{bw}$/day	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.373574

9.27.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.27.13.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.27.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	1.524 mg/kg$_{bw}$/day	-	0.224144

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.224144

9.27.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.27.14.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.27.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	25.547 mg/m³	47.6 mg/m³	0.536691[1]
Combined routes	4.143 mg/kg$_{bw}$/day	-	0.609296
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.536691
Combined routes	- mg/kg$_{bw}$/day	-	0.609296

9.27.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.27.15.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.27.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	4.258 mg/m³	47.6 mg/m³	0.089449[1]
Combined routes	0.690536 mg/kg$_{bw}$/day	-	0.101549
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.089449
Combined routes	- mg/kg$_{bw}$/day	-	0.101549

9.27.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.27.16.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.27.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	29.804 mg/m³	47.6 mg/m³	0.62614[1]
Combined routes	5.081 mg/kg$_{bw}$/day	-	0.747148
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.62614
Combined routes	- mg/kg$_{bw}$/day	-	0.747148

9.27.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.27.17.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %

Respiratory protection	no

9.27.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	17.883 mg/m³	47.6 mg/m³	0.375684[1]
Combined routes	3.048 mg/kg$_{bw}$/day	-	0.448289
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.375684
Combined routes	- mg/kg$_{bw}$/day	-	0.448289

9.27.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.27.18.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.27.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	38.32 mg/m³	47.6 mg/m³	0.805037[1]
Combined routes	6.462 mg/kg$_{bw}$/day	-	0.950247
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.805037
Combined routes	- mg/kg$_{bw}$/day	-	0.950247

9.27.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.27.19.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.27.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	2.558 mg/kg$_{bw}$/day	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.37619

9.27.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.27.20.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.27.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	3.193 mg/m³	47.6 mg/m³	0.067086[1]
Combined routes	0.538473 mg/kg$_{bw}$/day	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- mg/kg$_{bw}$/day	-	0.079187

9.27.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.27.21.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)

Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.27.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.242017[1]
inhalation, long-term systemic	4.471 mg/m^3	47.6 mg/m^3	0.093921[1]
Combined routes	2.284 mg/kg_{bw}/day	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- mg/kg_{bw}/day	-	0.335938

9.27.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.27.22.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.27.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.14521[1]
inhalation, long-term systemic	26.824 mg/m^3	47.6 mg/m^3	0.563526[1]
Combined routes	4.819 mg/kg_{bw}/day	-	0.708736
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.563526
Combined routes	- mg/kg_{bw}/day	-	0.708736

9.27.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.27.23.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.27.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	8.516 mg/m^3	47.6 mg/m^3	0.178897[1]
Combined routes	2.039 $mg/kg_{bw}/day$	-	0.299905
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.178897
Combined routes	- $mg/kg_{bw}/day$	-	0.299905

9.27.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.27.24.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.27.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.012101[1]
inhalation, long-term systemic	8.516 mg/m^3	47.6 mg/m^3	0.178897[1]
Combined routes	1.299 $mg/kg_{bw}/day$	-	0.190998
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.178897
Combined routes	- $mg/kg_{bw}/day$	-	0.190998

9.27.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.27.25.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.27.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.049371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.007261[1]
inhalation, long-term systemic	5.109 mg/m^3	47.6 mg/m^3	0.107338[1]
Combined routes	0.779271 $mg/kg_{bw}/day$	-	0.114599
Total result			
dermal	-	-	0.007261
inhalation	-	-	0.107338
Combined routes	- $mg/kg_{bw}/day$	-	0.114599

9.27.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.27.26.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.27.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	5.961 mg/m^3	47.6 mg/m^3	0.125228[1]
Combined routes	1.674 $mg/kg_{bw}/day$	-	0.246236
Total result			
dermal	-	-	0.121008

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation	-	-	0.125228
Combined routes	- mg/kg$_{bw}$/day	-	0.246236

9.27.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.27.27.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.27.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	35.765 mg/m³	47.6 mg/m³	0.751368[1]
Combined routes	5.603 mg/kg$_{bw}$/day	-	0.823973
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.751368
Combined routes	- mg/kg$_{bw}$/day	-	0.823973

9.30 Scenario 30: Up to 25% aqueous: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (formulation of mixtures) (ES-5 PROC 1, ES-5 PROC 15, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 5, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Up to 25% aqueous: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (formulation of mixtures) (ES-5 PROC 1, ES-5 PROC 15, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 5, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b)
Systematic title based on use descriptor	ERC 8B; PROC 1, 15, 19, 2, 3, 5, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 8b Wide dispersive indoor use of reactive substances in open systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 15 - Use of laboratory reagents in small scale laboratories PROC 19 - Hand-mixing with intimate contact (only PPE available) PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.30.1 Contributing Scenario (1) controlling environmental exposure for ERC 8B

9.30.1.1 Conditions of use

Operational conditions	
Annual tonnage	2.50E4 to/year
Daily amount used at site	60.685 kg/day
Release times per year	365 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.100 %
Release fraction to wastewater from process	2 %
Release fraction to soil from process	0 %
Fraction tonnage to region	10 %
Fraction used at main source	3.544 % *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter. Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges will be oxidized or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*

No direct discharge to freshwater compartment *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.*
Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.

9.30.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.30.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000012 mg/L	0.00135 mg/L	0.008718[1]	6,960.783
Marine water	0.000151 mg/L	0.00135 mg/L	0.112057[1]	541.554
Total result				
Freshwater	0.000012 mg/L	-	0.008718	6,960.783
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	0.000151 mg/L	-	0.112057	541.554
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.30.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000278 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.012569[1]	4,828.27
Total result				
Agricultural soil	0.000278 mg/kg_{dwt}	-	-	4,828.27

9.30.2 Contributing Scenario (2) controlling professional worker exposure for PROC 1 (PC 20, PC 21, PC 40)
9.30.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	0.017883 mg/m³	47.6 mg/m³	0.000376[1]
Combined routes	0.014898 mg/kg$_{bw}$/day	-	0.002191
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000376
Combined routes	- mg/kg$_{bw}$/day	-	0.002191

9.30.3 Contributing Scenario (3) controlling professional worker exposure for PROC 1 (PC 20, PC 21, PC 40)

9.30.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.001815[1]
inhalation, long-term systemic	0.025547 mg/m³	47.6 mg/m³	0.000537[1]
Combined routes	0.015992 mg/kg$_{bw}$/day	-	0.002352
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000537
Combined routes	- mg/kg$_{bw}$/day	-	0.002352

9.30.4 Contributing Scenario (4) controlling professional worker exposure for PROC 1 (PC 20, PC 21, PC 40)

9.30.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	No
Respiratory protection	no

9.30.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.029804 mg/m³	47.6 mg/m³	0.000626[1]
Combined routes	0.024829 mg/kg$_{bw}$/day	-	0.003651
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000626
Combined routes	- mg/kg$_{bw}$/day	-	0.003651

9.30.5 Contributing Scenario (5) controlling professional worker exposure for PROC 1 (PC 20, PC 21, PC 40)

9.30.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.042578 mg/m³	47.6 mg/m³	0.000894[1]
Combined routes	0.026654 mg/kg$_{bw}$/day	-	0.00392
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000894
Combined routes	- mg/kg$_{bw}$/day	-	0.00392

9.30.6 Contributing Scenario (6) controlling professional worker exposure for PROC 15 (PC 20, PC 21, PC 40)

9.30.6.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours

Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.123429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.018151[1]
inhalation, long-term systemic	12.773 mg/m^3	47.6 mg/m^3	0.268346[1]
Combined routes	1.948 $mg/kg_{bw}/day$	-	0.286497
Total result			
dermal	-	-	0.018151
inhalation	-	-	0.268346
Combined routes	- $mg/kg_{bw}/day$	-	0.286497

9.30.7 Contributing Scenario (7) controlling professional worker exposure for PROC 15 (PC 20, PC 21, PC 40)

9.30.7.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.123429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.018151[1]
inhalation, long-term systemic	8.941 mg/m^3	47.6 mg/m^3	0.187842[1]
Combined routes	1.401 $mg/kg_{bw}/day$	-	0.205993
Total result			
dermal	-	-	0.018151
inhalation	-	-	0.187842
Combined routes	- $mg/kg_{bw}/day$	-	0.205993

9.30.8 Contributing Scenario (8) controlling professional worker exposure for PROC 15 (PC 20, PC 21, PC 40)

9.30.8.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.205714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.030252[1]
inhalation, long-term systemic	21.289 mg/m^3	47.6 mg/m^3	0.447243[1]
Combined routes	3.247 $mg/kg_{bw}/day$	-	0.477495
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.447243
Combined routes	- $mg/kg_{bw}/day$	-	0.477495

9.30.9 Contributing Scenario (9) controlling professional worker exposure for PROC 15 (PC 20, PC 21, PC 40)

9.30.9.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.205714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.030252[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.335 $mg/kg_{bw}/day$	-	0.343322
Total result			

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
dermal	-	-	0.030252
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.343322

9.30.10 Contributing Scenario (10) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)
9.30.10.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	95 %

9.30.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.509143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.074874[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	1.422 mg/kg$_{bw}$/day	-	0.209047
Total result			
dermal	-	-	0.074874
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.209047

9.30.11 Contributing Scenario (11) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)
9.30.11.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	95 %

9.30.11.2 Exposure and risks for workers - for general information see Note 2 on COVERING PAGE**

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.509143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.074874[1]
inhalation, long-term systemic	1.916 mg/m³	47.6 mg/m³	0.040252[1]
Combined routes	0.782855 mg/kg$_{bw}$/day	-	0.115126
Total result			
dermal	-	-	0.074874
inhalation	-	-	0.040252
Combined routes	- mg/kg$_{bw}$/day	-	0.115126

9.30.12 Contributing Scenario (12) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.30.12.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm²
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.30.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.509143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.074874[1]
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	1.786 mg/kg$_{bw}$/day	-	0.262716
Total result			
dermal	-	-	0.074874
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.262716

9.30.13 Contributing Scenario (13) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.30.13.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm²
Location	indoors
Domain	professional

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.30.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.89 mg/kg$_{bw}$/day	-	0.572033
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.572033

9.30.14 Contributing Scenario (14) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.30.14.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (inhalation 80 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	95 %

9.30.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	2.129 mg/m³	47.6 mg/m³	0.044724[1]
Combined routes	1.153 mg/kg$_{bw}$/day	-	0.169514
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.044724
Combined routes	- mg/kg$_{bw}$/day	-	0.169514

9.30.15 Contributing Scenario (15) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.30.15.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%

Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.30.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.977 $mg/kg_{bw}/day$	-	0.43786
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.31307
Combined routes	- $mg/kg_{bw}/day$	-	0.43786

9.30.16 Contributing Scenario (16) controlling professional worker exposure for PROC 2 (PC 20, PC 21, PC 40)

9.30.16.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.072605[1]
inhalation, long-term systemic	12.773 mg/m^3	47.6 mg/m^3	0.268346[1]
Combined routes	2.318 $mg/kg_{bw}/day$	-	0.340951
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.268346
Combined routes	- $mg/kg_{bw}/day$	-	0.340951

9.30.17 Contributing Scenario (17) controlling professional worker exposure for PROC 2 (PC 20, PC 21, PC 40)

9.30.17.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.072605[1]
inhalation, long-term systemic	8.941 mg/m^3	47.6 mg/m^3	0.187842[1]
Combined routes	1.771 $mg/kg_{bw}/day$	-	0.260447
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.187842
Combined routes	- $mg/kg_{bw}/day$	-	0.260447

9.30.18 Contributing Scenario (18) controlling professional worker exposure for PROC 2 (PC 20, PC 21, PC 40)

9.30.18.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	21.289 mg/m^3	47.6 mg/m^3	0.447243[1]
Combined routes	3.864 $mg/kg_{bw}/day$	-	0.568251

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.568251

9.30.19 Contributing Scenario (19) controlling professional worker exposure for PROC 2 (PC 20, PC 21, PC 40)

9.30.19.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.952 mg/kg$_{bw}$/day	-	0.434078
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.434078

9.30.20 Contributing Scenario (20) controlling professional worker exposure for PROC 3 (PC 20, PC 21, PC 40)

9.30.20.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	25.547 mg/m³	47.6 mg/m³	0.536691[1]
Combined routes	3.896 mg/kg$_{bw}$/day	-	0.572994
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.536691
Combined routes	- mg/kg$_{bw}$/day	-	0.572994

9.30.21 Contributing Scenario (21) controlling professional worker exposure for PROC 3 (PC 20, PC 21, PC 40)

9.30.21.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	17.883 mg/m³	47.6 mg/m³	0.375684[1]
Combined routes	2.802 mg/kg$_{bw}$/day	-	0.411986
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.375684
Combined routes	- mg/kg$_{bw}$/day	-	0.411986

9.30.22 Contributing Scenario (22) controlling professional worker exposure for PROC 3 (PC 20, PC 21, PC 40)

9.30.22.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	42.578 mg/m³	47.6 mg/m³	0.894485[1]
Combined routes	6.494 mg/kg$_{bw}$/day	-	0.95499
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.894485
Combined routes	- mg/kg$_{bw}$/day	-	0.95499

9.30.23 Contributing Scenario (23) controlling professional worker exposure for PROC 3 (PC 20, PC 21, PC 40)

9.30.23.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.30.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	29.804 mg/m³	47.6 mg/m³	0.62614[1]
Combined routes	4.669 mg/kg$_{bw}$/day	-	0.686644
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.62614
Combined routes	- mg/kg$_{bw}$/day	-	0.686644

9.30.24 Contributing Scenario (24) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.30.24.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>5-25%

Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.30.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.072605[1]
inhalation, long-term systemic	12.773 mg/m^3	47.6 mg/m^3	0.268346[1]
Combined routes	2.318 $mg/kg_{bw}/day$	-	0.340951
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.268346
Combined routes	- $mg/kg_{bw}/day$	-	0.340951

9.30.25 Contributing Scenario (25) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.30.25.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.30.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.072605[1]
inhalation, long-term systemic	3.832 mg/m^3	47.6 mg/m^3	0.080504[1]
Combined routes	1.041 $mg/kg_{bw}/day$	-	0.153109
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.080504

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.153109

9.30.26 Contributing Scenario (26) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.30.26.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.30.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	1.771 mg/kg$_{bw}$/day	-	0.260447
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.260447

9.30.27 Contributing Scenario (27) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.30.27.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.30.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	1.735 mg/kg$_{bw}$/day	-	0.255181
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.255181

9.30.28 Contributing Scenario (28) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.30.28.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.30.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	1.735 mg/kg$_{bw}$/day	-	0.255181
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.255181

9.30.29 Contributing Scenario (29) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.30.29.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)

Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.30.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.952 mg/kg$_{bw}$/day	-	0.434078
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.434078

9.30.30 Contributing Scenario (30) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)
9.30.30.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.30.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	19.16 mg/m³	47.6 mg/m³	0.402518[1]
Combined routes	3.725 mg/kg$_{bw}$/day	-	0.547728
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.402518
Combined routes	- mg/kg$_{bw}$/day	-	0.547728

9.30.31 Contributing Scenario (31) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)
9.30.31.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.30.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.14521[1]
inhalation, long-term systemic	4.471 mg/m^3	47.6 mg/m^3	0.093921[1]
Combined routes	1.626 $mg/kg_{bw}/day$	-	0.239131
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.093921
Combined routes	- $mg/kg_{bw}/day$	-	0.239131

9.30.32 Contributing Scenario (32) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.30.32.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.30.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	3.166 $mg/kg_{bw}/day$	-	0.465638
Total result			
dermal	-	-	0.242017

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.465638

9.30.33 Contributing Scenario (33) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.30.33.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.30.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	6.208 mg/kg$_{bw}$/day	-	0.912881
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.912881

9.30.34 Contributing Scenario (34) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.30.34.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.30.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	2.71 mg/kg$_{bw}$/day	-	0.398552
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.398552

9.30.35 Contributing Scenario (35) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.30.35.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.30.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	19.16 mg/m³	47.6 mg/m³	0.402518[1]
Combined routes	3.231 mg/kg$_{bw}$/day	-	0.475123
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.402518
Combined routes	- mg/kg$_{bw}$/day	-	0.475123

9.30.36 Contributing Scenario (36) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.30.36.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)

Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.30.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	1.132 mg/kg$_{bw}$/day	-	0.166526
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.166526

9.30.37 Contributing Scenario (37) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)
9.30.37.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.30.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.30.38 Contributing Scenario (38) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)
9.30.38.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.30.38.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	31.933 mg/m^3	47.6 mg/m^3	0.670864[1]
Combined routes	5.385 $mg/kg_{bw}/day$	-	0.791872
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.670864
Combined routes	- $mg/kg_{bw}/day$	-	0.791872

9.30.39 Contributing Scenario (39) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.30.39.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.30.39.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.887 $mg/kg_{bw}/day$	-	0.277543
Total result			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.277543

9.34 Scenario 34: Up to 25% aqueous: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (reactive agent/processing aid, general chemical applications, e.g., pH/neutralising agent, water treatment) (ES-5 PROC 1, ES-5 PROC 10, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 4, ES-5 PROC 8a, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b, ES-5 ERC 8e)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Up to 25% aqueous: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (reactive agent/processing aid, general chemical applications, e.g., pH/neutralising agent, water treatment) (ES-5 PROC 1, ES-5 PROC 10, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 4, ES-5 PROC 8a, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b, ES-5 ERC 8e)
Systematic title based on use descriptor	ERC 8B, 8E; PROC 1, 10, 19, 2, 3, 4, 8A, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 8b Wide dispersive indoor use of reactive substances in open systems ERC 8e Wide dispersive outdoor use of reactive substances in open systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 10 - Roller application or brushing PROC 19 - Hand-mixing with intimate contact (only PPE available) PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.34.1 Contributing Scenario (1) controlling environmental exposure for ERC 8B

9.34.1.1 Conditions of use

Operational conditions	
Annual tonnage	2.50E4 to/year
Daily amount used at site	60.685 kg/day
Release times per year	365 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.100 %
Release fraction to wastewater from process	2 %
Release fraction to soil from process	0 %
Fraction tonnage to region	10 %
Fraction used at main source	3.544 % *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter. Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day

Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges will be oxidized or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*
No direct discharge to freshwater compartment *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*	

9.34.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.34.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000012 mg/L	0.00135 mg/L	0.008718[1]	6,960.783
Marine water	0.000151 mg/L	0.00135 mg/L	0.112057[1]	541.554
Total result				
Freshwater	0.000012 mg/L	-	0.008718	6,960.783
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	0.000151 mg/L	-	0.112057	541.554
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.34.1.4 Terrestrial compartment
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000278 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.012569[1]	4,828.27
Total result				
Agricultural soil	0.000278 mg/kg_{dwt}	-	-	4,828.27

9.34.2 Contributing Scenario (2) controlling environmental exposure for ERC 8E
9.34.2.1 Conditions of use

Operational conditions	
Annual tonnage	2.50E4 to/year
Daily amount used at site	60.685 kg/day
Release times per year	365 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.100 %
Release fraction to wastewater from process	2 %
Release fraction to soil from process	0 %
Fraction tonnage to region	10 %

Fraction used at main source	3.544 % *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter. Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges will be oxidized or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*
No direct discharge to freshwater compartment *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*	

9.34.2.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.34.2.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000012 mg/L	0.00135 mg/L	0.008718[1]	6,960.783
Marine water	0.000151 mg/L	0.00135 mg/L	0.112057[1]	541.554
Total result				
Freshwater	0.000012 mg/L	-	0.008718	6,960.783
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	0.000151 mg/L	-	0.112057	541.554
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.34.2.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000278 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.012569[1]	4,828.27
Total result				
Agricultural soil	0.000278 mg/kg_{dwt}	-	-	4,828.27

9.34.3 Contributing Scenario (3) controlling professional worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.34.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.34.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.001815[1]
inhalation, long-term systemic	0.017883 mg/m^3	47.6 mg/m^3	0.000376[1]
Combined routes	0.014898 $mg/kg_{bw}/day$	-	0.002191
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000376
Combined routes	- $mg/kg_{bw}/day$	-	0.002191

9.34.4 Contributing Scenario (4) controlling professional worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.34.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.34.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.012343 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.001815[1]
inhalation, long-term systemic	0.025547 mg/m^3	47.6 mg/m^3	0.000537[1]
Combined routes	0.015992 $mg/kg_{bw}/day$	-	0.002352

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Total result			
dermal	-	-	0.001815
inhalation	-	-	0.000537
Combined routes	- mg/kg$_{bw}$/day	-	0.002352

9.34.5 Contributing Scenario (5) controlling professional worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.34.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.34.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.029804 mg/m³	47.6 mg/m³	0.000626[1]
Combined routes	0.024829 mg/kg$_{bw}$/day	-	0.003651
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000626
Combined routes	- mg/kg$_{bw}$/day	-	0.003651

9.34.6 Contributing Scenario (6) controlling professional worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.34.6.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.34.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.042578 mg/m³	47.6 mg/m³	0.000894[1]
Combined routes	0.026654 mg/kg$_{bw}$/day	-	0.00392
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000894
Combined routes	- mg/kg$_{bw}$/day	-	0.00392

9.34.7 Contributing Scenario (7) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.34.7.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.34.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	12.773 mg/m³	47.6 mg/m³	0.268346[1]
Combined routes	2.812 mg/kg$_{bw}$/day	-	0.413556
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.268346
Combined routes	- mg/kg$_{bw}$/day	-	0.413556

9.34.8 Contributing Scenario (8) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.34.8.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	good (30%)

Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.34.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	2.265 mg/kg$_{bw}$/day	-	0.333052
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.333052

9.34.9 Contributing Scenario (9) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.34.9.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.34.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	2.265 mg/kg$_{bw}$/day	-	0.333052
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.333052

9.34.10 Contributing Scenario (10) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.34.10.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing

Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.34.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	21.289 mg/m^3	47.6 mg/m^3	0.447243[1]
Combined routes	4.687 $mg/kg_{bw}/day$	-	0.689259
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.447243
Combined routes	- $mg/kg_{bw}/day$	-	0.689259

9.34.11 Contributing Scenario (11) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.34.11.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.34.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	3.775 $mg/kg_{bw}/day$	-	0.555087
Total result			
dermal	-	-	0.242017

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.555087

9.34.12 Contributing Scenario (12) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.34.12.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.34.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	3.775 mg/kg$_{bw}$/day	-	0.555087
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.555087

9.34.13 Contributing Scenario (13) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.34.13.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)) *(justification: Minimum protection limit.)*
Respiratory protection	95 %

9.34.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.509143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.074874[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	1.422 mg/kg$_{bw}$/day	-	0.209047
Total result			
dermal	-	-	0.074874
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.209047

9.34.14 Contributing Scenario (14) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.34.14.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm²
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	95 %

9.34.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.509143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.074874[1]
inhalation, long-term systemic	1.916 mg/m³	47.6 mg/m³	0.040252[1]
Combined routes	0.782855 mg/kg$_{bw}$/day	-	0.115126
Total result			
dermal	-	-	0.074874
inhalation	-	-	0.040252
Combined routes	- mg/kg$_{bw}$/day	-	0.115126

9.34.15 Contributing Scenario (15) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.34.15.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm²
Location	outdoors (30%)

Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.34.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.509143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.074874[1]
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	1.786 mg/kg$_{bw}$/day	-	0.262716
Total result			
dermal	-	-	0.074874
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.262716

9.34.16 Contributing Scenario (16) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.34.16.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.34.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.89 mg/kg$_{bw}$/day	-	0.572033
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.572033

9.34.17 Contributing Scenario (17) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.34.17.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available

Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (inhalation 80 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	95 %

9.34.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	2.129 mg/m^3	47.6 mg/m^3	0.044724[1]
Combined routes	1.153 $mg/kg_{bw}/day$	-	0.169514
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.044724
Combined routes	- $mg/kg_{bw}/day$	-	0.169514

9.34.18 Contributing Scenario (18) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.34.18.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.34.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.977 $mg/kg_{bw}/day$	-	0.43786
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.31307

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	- mg/kg$_{bw}$/day	-	0.43786

9.34.19 Contributing Scenario (19) controlling professional worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.34.19.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.34.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	12.773 mg/m³	47.6 mg/m³	0.268346[1]
Combined routes	2.318 mg/kg$_{bw}$/day	-	0.340951
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.268346
Combined routes	- mg/kg$_{bw}$/day	-	0.340951

9.34.20 Contributing Scenario (20) controlling professional worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.34.20.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.34.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	8.941 mg/m³	47.6 mg/m³	0.187842[1]
Combined routes	1.771 mg/kg$_{bw}$/day	-	0.260447
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.260447

9.34.21 Contributing Scenario (21) controlling professional worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.34.21.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.34.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.864 mg/kg$_{bw}$/day	-	0.568251
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.568251

9.34.22 Contributing Scenario (22) controlling professional worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.34.22.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No

Respiratory protection	no

9.34.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.952 mg/kg$_{bw}$/day	-	0.434078
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.434078

9.34.23 Contributing Scenario (23) controlling professional worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.34.23.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.34.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	25.547 mg/m³	47.6 mg/m³	0.536691[1]
Combined routes	3.896 mg/kg$_{bw}$/day	-	0.572994
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.536691
Combined routes	- mg/kg$_{bw}$/day	-	0.572994

9.34.24 Contributing Scenario (24) controlling professional worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.34.24.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2

Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.34.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.246857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.036303[1]
inhalation, long-term systemic	17.883 mg/m³	47.6 mg/m³	0.375684[1]
Combined routes	2.802 mg/kg$_{bw}$/day	-	0.411986
Total result			
dermal	-	-	0.036303
inhalation	-	-	0.375684
Combined routes	- mg/kg$_{bw}$/day	-	0.411986

9.34.25 Contributing Scenario (25) controlling professional worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.34.25.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.34.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	42.578 mg/m³	47.6 mg/m³	0.894485[1]
Combined routes	6.494 mg/kg$_{bw}$/day	-	0.95499
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.894485
Combined routes	- mg/kg$_{bw}$/day	-	0.95499

9.34.26 Contributing Scenario (26) controlling professional worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.34.26.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.34.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.060504[1]
inhalation, long-term systemic	29.804 mg/m^3	47.6 mg/m^3	0.62614[1]
Combined routes	4.669 $mg/kg_{bw}/day$	-	0.686644
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.62614
Combined routes	- $mg/kg_{bw}/day$	-	0.686644

9.34.27 Contributing Scenario (27) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.34.27.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.34.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.072605[1]
inhalation, long-term systemic	19.16 mg/m^3	47.6 mg/m^3	0.402518[1]
Combined routes	3.231 $mg/kg_{bw}/day$	-	0.475123
Total result			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal	-	-	0.072605
inhalation	-	-	0.402518
Combined routes	- mg/kg$_{bw}$/day	-	0.475123

9.34.28 Contributing Scenario (28) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.34.28.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	1.132 mg/kg$_{bw}$/day	-	0.166526
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.166526

9.34.29 Contributing Scenario (29) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.34.29.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.34.30 Contributing Scenario (30) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.34.30.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.34.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	5.385 mg/kg$_{bw}$/day	-	0.791872
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.791872

9.34.31 Contributing Scenario (31) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.34.31.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2

Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.34.32 Contributing Scenario (32) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.34.32.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	12.773 mg/m³	47.6 mg/m³	0.268346[1]
Combined routes	2.812 mg/kg$_{bw}$/day	-	0.413556
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.268346
Combined routes	- mg/kg$_{bw}$/day	-	0.413556

9.34.33 Contributing Scenario (33) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.34.33.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.34.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.14521[1]
inhalation, long-term systemic	38.32 mg/m^3	47.6 mg/m^3	0.805037[1]
Combined routes	6.462 $mg/kg_{bw}/day$	-	0.950247
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.805037
Combined routes	- $mg/kg_{bw}/day$	-	0.950247

9.34.34 Contributing Scenario (34) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.34.34.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.14521[1]
inhalation, long-term systemic	8.941 mg/m^3	47.6 mg/m^3	0.187842[1]
Combined routes	2.265 $mg/kg_{bw}/day$	-	0.333052
Total result			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal	-	-	0.14521
inhalation	-	-	0.187842
Combined routes	- mg/kg$_{bw}$/day	-	0.333052

9.34.35 Contributing Scenario (35) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.34.35.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	4.687 mg/kg$_{bw}$/day	-	0.689259
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.689259

9.34.36 Contributing Scenario (36) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.34.36.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	2.558 mg/kg$_{bw}$/day	-	0.37619
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.37619

9.34.37 Contributing Scenario (37) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.34.37.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	3.775 mg/kg$_{bw}$/day	-	0.555087
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.555087

9.34.38 Contributing Scenario (38) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.34.38.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)

Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.34.38.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	19.16 mg/m³	47.6 mg/m³	0.402518[1]
Combined routes	3.725 mg/kg$_{bw}$/day	-	0.547728
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.402518
Combined routes	- mg/kg$_{bw}$/day	-	0.547728

9.34.39 Contributing Scenario (39) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.34.39.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.39.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.987429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.14521[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	1.626 mg/kg$_{bw}$/day	-	0.239131
Total result			
dermal	-	-	0.14521
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.239131

9.34.40 Contributing Scenario (40) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.34.40.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%

Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.40.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	3.166 $mg/kg_{bw}/day$	-	0.465638
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.465638

9.34.41 Contributing Scenario (41) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.34.41.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.34.41.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	31.933 mg/m^3	47.6 mg/m^3	0.670864[1]
Combined routes	6.208 $mg/kg_{bw}/day$	-	0.912881
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.670864

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	- mg/kg$_{bw}$/day	-	0.912881

9.34.42 Contributing Scenario (42) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.34.42.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.42.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	2.71 mg/kg$_{bw}$/day	-	0.398552
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.398552

9.34.43 Contributing Scenario (43) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.34.43.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.34.43.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	19.16 mg/m³	47.6 mg/m³	0.402518[1]
Combined routes	3.231 mg/kg$_{bw}$/day	-	0.475123
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.402518
Combined routes	- mg/kg$_{bw}$/day	-	0.475123

9.34.44 Contributing Scenario (44) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.34.44.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm²
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.44.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.493714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.072605[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	1.132 mg/kg$_{bw}$/day	-	0.166526
Total result			
dermal	-	-	0.072605
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.166526

9.34.45 Contributing Scenario (45) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.34.45.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm²
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.45.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.34.46 Contributing Scenario (46) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.34.46.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.34.46.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	5.385 mg/kg$_{bw}$/day	-	0.791872
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.791872

9.34.47 Contributing Scenario (47) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.34.47.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>5-25%

Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.34.47.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
25% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.887 $mg/kg_{bw}/day$	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.277543

COVERING PAGE - information applicable to all ESs listed below

Conditions of use common to all contributing scenarios (CSs) for following ES: 37, 39, 40, 42, 45

Name of contributing scenario	PROC relevant for CS
Exposure type	Inhalation: Long-term systemic; Dermal: Long-term systemic
Product characteristics	
Physical state	liquid
Concentration in substance	**>25%**
Max. conc. (ECETOC)	>25%
Fugacity / Dustiness	high
Frequency and duration of use	
Duration of activity	according to CS
Frequency of use	5 days / week
Human factors not influenced by risk management	
Exposed skin surface	according to CS
Other given operational conditions affecting workers exposure	
Location	according to CS
Domain	Industrial (unless otherwise stated as Professional for ES 8, 9, 11, 30, 34,42,45)
Technical conditions and measures to control dispersion and exposure	
Local exhaust ventilation	according to CS
Conditions and measures related to personal protection, hygiene and health evaluation	
Protective gloves	according to CS
Respiratory protection	according to CS

Note 1
Explanations for the RCR assessment (Risk characterization ratio), listed in the following tables for individual ECs (marked with *):
[1] *Worst case result used for total RCR (Risk characterisation ratio), RCR <1 means safe use*
[2] *Part of additive RCR*
[3] *Worst case value, as dermal and inhalation RCRs are coming from different substances*

Note 2:
Information valid for all tables numbered 9.XX.XX.2 Exposure and risks for workers (XX – number of the given ES), (marked with **)
9.XX.XX.2 Exposure and risks for workers
The quantitative risk characterisation for this worker exposure has been calculated by EasyTRA.
The following table shows the exposure estimations via the dermal and inhalation route together with the total exposure of workers over all routes if applicable.

9.37 Scenario 37: Up to 35% aqueous: Industrial end-use of anhydrous and aqueous ammonia (flue gas NOx and SOx reduction) (ES-4 PROC 1, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Up to 35% aqueous: Industrial end-use of anhydrous and aqueous ammonia (flue gas NOx and SOx reduction) (ES-4 PROC 1, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b)
Systematic title based on use descriptor	ERC 6B; PROC 1, 19, 2, 3, 4, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 6b Industrial use of reactive processing aids
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 19 - Hand-mixing with intimate contact (only PPE available) PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.37.1 Contributing Scenario (1) controlling environmental exposure for ERC 6B

9.37.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.55E5 to/year
Daily amount used at site	14.575 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.0001 %
Release fraction to wastewater from process	0.050 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.249837 % *(Max. tonnage biggest customer: 354631 tpa / 400 companies = 886 tpa)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*

SpERC	NH-4 - 6b (spERC -6b – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.25% (Default 100%). The substance is industrially used by 400 companies indicating a fraction main source of 0.25%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 354631 tpa to regional tonnage 25000 tpa. Release to air: 0.0001% (Default: 0.1%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.05% (Default: 5%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 5/100 = 0.05% was set arbitrarily. Release to soil: 0% (Default: 0.025%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.37.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.37.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000018 mg/L	0.00135 mg/L	0.013024[1]	1,119.069
Marine water	1.79E-6 mg/L	0.00135 mg/L	0.001328[1]	1.10E4
Total result				
Freshwater	0.000018 mg/L	-	0.013024	1,119.069
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	1.79E-6 mg/L	-	0.001328	1.10E4
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.37.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000214 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.009674[1]	1,506.6
Total result				
Agricultural soil	0.000214 mg/kg_{dwt}	-	-	1,506.6

9.37.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 0)
9.37.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	No
Respiratory protection	no

9.37.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.37.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1 (PC 0)

9.37.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.37.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.37.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1 (PC 0)

9.37.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2

Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.37.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.37.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1 (PC 0)

9.37.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.37.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.37.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 19

9.37.6.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%

Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.37.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.207983[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	3.949 $mg/kg_{bw}/day$	-	0.580685
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.372702
Combined routes	- $mg/kg_{bw}/day$	-	0.580685

9.37.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 19

9.37.7.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	no

9.37.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.207983[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	3.949 $mg/kg_{bw}/day$	-	0.580685
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.372702
Combined routes	- $mg/kg_{bw}/day$	-	0.580685

9.37.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 19

9.37.8.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.37.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.207983[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	3.188 $mg/kg_{bw}/day$	-	0.468875
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.260892
Combined routes	- $mg/kg_{bw}/day$	-	0.468875

9.37.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 19

9.37.9.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.37.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.913 $mg/kg_{bw}/day$	-	0.281325
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.281325

9.37.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 19

9.37.10.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.*
Respiratory protection	95 %

9.37.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	5.322 mg/m^3	47.6 mg/m^3	0.111811[1]
Combined routes	1.609 $mg/kg_{bw}/day$	-	0.236601
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.111811
Combined routes	- $mg/kg_{bw}/day$	-	0.236601

9.37.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 2

9.37.11.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.37.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	3.906 $mg/kg_{bw}/day$	-	0.574383
Total result			
dermal	-	-	0.201681

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.37.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 2

9.37.12.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.37.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.37.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 2

9.37.13.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.37.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.37.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 2

9.37.14.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.37.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.37.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 3

9.37.15.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.37.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.754 mg/kg$_{bw}$/day	-	0.846245
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.846245

9.37.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 3

9.37.16.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.37.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.234 mg/kg$_{bw}$/day	-	0.622623
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.622623

9.37.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 3

9.37.17.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No

Respiratory protection	no

9.37.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.37.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 3

9.37.18.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.37.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.54 mg/kg$_{bw}$/day	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.373574

9.37.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 4

9.37.19.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.37.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	29.804 mg/m³	47.6 mg/m³	0.62614[1]
Combined routes	5.081 mg/kg$_{bw}$/day	-	0.747148
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.62614
Combined routes	- mg/kg$_{bw}$/day	-	0.747148

9.37.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 4

9.37.20.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.37.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	7.096 mg/m³	47.6 mg/m³	0.149081[1]
Combined routes	1.151 mg/kg$_{bw}$/day	-	0.169249
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.149081
Combined routes	- mg/kg$_{bw}$/day	-	0.169249

9.37.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 4

9.37.21.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	> 4 hours (default)

Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.37.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.201681[1]
inhalation, long-term systemic	4.967 mg/m³	47.6 mg/m³	0.104357[1]
Combined routes	2.081 mg/kg_{bw}/day	-	0.306037
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.104357
Combined routes	- mg/kg_{bw}/day	-	0.306037

9.37.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 4

9.37.22.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.37.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.012101[1]
inhalation, long-term systemic	4.258 mg/m³	47.6 mg/m³	0.089449[1]
Combined routes	0.690536 mg/kg_{bw}/day	-	0.101549
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.089449
Combined routes	- mg/kg_{bw}/day	-	0.101549

9.37.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 8B

9.37.23.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities

Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.37.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	4.263 $mg/kg_{bw}/day$	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.626983

9.37.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 8B

9.37.24.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.37.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	3.807 $mg/kg_{bw}/day$	-	0.559896
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.559896

9.37.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 8B

9.37.25.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.37.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.020168[1]
inhalation, long-term systemic	5.322 mg/m^3	47.6 mg/m^3	0.111811[1]
Combined routes	0.897455 $mg/kg_{bw}/day$	-	0.131979
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.111811
Combined routes	- $mg/kg_{bw}/day$	-	0.131979

9.37.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 8B

9.37.26.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.37.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	4.471 mg/m^3	47.6 mg/m^3	0.093921[1]
Combined routes	2.284 $mg/kg_{bw}/day$	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.335938

9.37.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 8B

9.37.27.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.37.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	3.193 mg/m³	47.6 mg/m³	0.067086[1]
Combined routes	0.538473 mg/kg$_{bw}$/day	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- mg/kg$_{bw}$/day	-	0.079187

9.37.28 Contributing Scenario (28) controlling industrial worker exposure for PROC 9

9.37.28.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.37.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	25.547 mg/m³	47.6 mg/m³	0.536691[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	4.472 mg/kg$_{bw}$/day	-	0.6577
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.536691
Combined routes	- mg/kg$_{bw}$/day	-	0.6577

9.37.29 Contributing Scenario (29) controlling industrial worker exposure for PROC 9

9.37.29.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.37.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	14.193 mg/m³	47.6 mg/m³	0.298162[1]
Combined routes	3.399 mg/kg$_{bw}$/day	-	0.499842
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.298162
Combined routes	- mg/kg$_{bw}$/day	-	0.499842

9.37.30 Contributing Scenario (30) controlling industrial worker exposure for PROC 9

9.37.30.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.37.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	14.193 mg/m³	47.6 mg/m³	0.298162[1]
Combined routes	2.165 mg/kg$_{bw}$/day	-	0.31833
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.298162
Combined routes	- mg/kg$_{bw}$/day	-	0.31833

9.37.31 Contributing Scenario (31) controlling industrial worker exposure for PROC 9

9.37.31.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.37.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	9.935 mg/m³	47.6 mg/m³	0.208713[1]
Combined routes	2.791 mg/kg$_{bw}$/day	-	0.410394
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.208713
Combined routes	- mg/kg$_{bw}$/day	-	0.410394

9.37.32 Contributing Scenario (32) controlling industrial worker exposure for PROC 9

9.37.32.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %

Respiratory protection	90 %

9.37.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	5.961 mg/m³	47.6 mg/m³	0.125228[1]
Combined routes	1.674 mg/kg$_{bw}$/day	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- mg/kg$_{bw}$/day	-	0.246236

9.39 Scenario 39: Up to 35% aqueous: Industrial end-use of anhydrous and aqueous ammonia (processing, non-processing aids, auxiliary agent) (ES-4 PROC 1, ES-4 PROC 10, ES-4 PROC 13, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 5, ES-4 PROC 7, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Up to 35% aqueous: Industrial end-use of anhydrous and aqueous ammonia (processing, non-processing aids, auxiliary agent) (ES-4 PROC 1, ES-4 PROC 10, ES-4 PROC 13, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 5, ES-4 PROC 7, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b)
Systematic title based on use descriptor	ERC 6B; PROC 1, 10, 13, 19, 2, 3, 4, 5, 7, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 6b Industrial use of reactive processing aids
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 10 - Roller application or brushing PROC 13 - Treatment of articles by dipping and pouring PROC 19 - Hand-mixing with intimate contact (only PPE available) PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 7 - Industrial spraying PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.39.1 Contributing Scenario (1) controlling environmental exposure for ERC 6B

9.39.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.55E5 to/year
Daily amount used at site	14.575 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.0001 %
Release fraction to wastewater from process	0.050 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.249837 % *(Max. tonnage biggest customer: 354631 tpa / 400 companies = 886 tpa)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*

SpERC	NH-4 - 6b (spERC -6b – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.25% (Default 100%). The substance is industrially used by 400 companies indicating a fraction main source of 0.25%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 354631 tpa to regional tonnage 25000 tpa. Release to air: 0.0001% (Default: 0.1%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.05% (Default: 5%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 5/100 = 0.05% was set arbitrarily. Release to soil: 0% (Default: 0.025%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.39.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.39.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000018 mg/L	0.00135 mg/L	0.013024[1]	1,119.069
Marine water	1.79E-6 mg/L	0.00135 mg/L	0.001328[1]	1.10E4
Total result				
Freshwater	0.000018 mg/L	-	0.013024	1,119.069
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	1.79E-6 mg/L	-	0.001328	1.10E4
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.39.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000214 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.009674[1]	1,506.6
Total result				
Agricultural soil	0.000214 mg/kg_{dwt}	-	-	1,506.6

9.39.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1
9.39.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No

Respiratory protection	no

9.39.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.39.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1

9.39.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.39.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.39.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1

9.39.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.39.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.39.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1

9.39.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.39.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.39.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 10

9.39.6.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>25%
Duration of activity	> 4 hours (default)

Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.39.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	5.277 $mg/kg_{bw}/day$	-	0.776064
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.372702
Combined routes	- $mg/kg_{bw}/day$	-	0.776064

9.39.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 10

9.39.7.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.39.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	31.933 mg/m^3	47.6 mg/m^3	0.670864[1]
Combined routes	6.208 $mg/kg_{bw}/day$	-	0.912881
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.670864
Combined routes	- $mg/kg_{bw}/day$	-	0.912881

9.39.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 10

9.39.8.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 0 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.39.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	5.277 $mg/kg_{bw}/day$	-	0.776064
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.372702
Combined routes	- $mg/kg_{bw}/day$	-	0.776064

9.39.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 10

9.39.9.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.39.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	4.517 $mg/kg_{bw}/day$	-	0.664253
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.260892
Combined routes	- $mg/kg_{bw}/day$	-	0.664253

9.39.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 10

9.39.10.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.39.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	2.71 $mg/kg_{bw}/day$	-	0.398552
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.398552

9.39.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 13

9.39.11.1 Conditions of use

Name of contributing scenario	PROC 13 Treatment of articles by dipping and pouring
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.39.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	5.277 $mg/kg_{bw}/day$	-	0.776064
Total result			
dermal	-	-	0.403361

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.776064

9.39.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 13

9.39.12.1 Conditions of use

Name of contributing scenario	PROC 13 Treatment of articles by dipping and pouring
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.39.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	6.208 mg/kg$_{bw}$/day	-	0.912881
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.912881

9.39.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 13

9.39.13.1 Conditions of use

Name of contributing scenario	PROC 13 Treatment of articles by dipping and pouring
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.39.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.274286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.040336[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	2.809 mg/kg$_{bw}$/day	-	0.413038
Total result			
dermal	-	-	0.040336
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.413038

9.39.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 13

9.39.14.1 Conditions of use

Name of contributing scenario	PROC 13 Treatment of articles by dipping and pouring
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.39.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	2.71 mg/kg$_{bw}$/day	-	0.398552
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.398552

9.39.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 13

9.39.15.1 Conditions of use

Name of contributing scenario	PROC 13 Treatment of articles by dipping and pouring
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.39.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	4.517 mg/kg$_{bw}$/day	-	0.664253
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.664253

9.39.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 19

9.39.16.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm²
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.*
Respiratory protection	95 %

9.39.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	5.322 mg/m³	47.6 mg/m³	0.111811[1]
Combined routes	1.609 mg/kg$_{bw}$/day	-	0.236601
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.111811
Combined routes	- mg/kg$_{bw}$/day	-	0.236601

9.39.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 19

9.39.17.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm²
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.*
Respiratory protection	90 %

9.39.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.207983[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.949 mg/kg$_{bw}$/day	-	0.580685
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.580685

9.39.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 19

9.39.18.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	no

9.39.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.207983[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.949 mg/kg$_{bw}$/day	-	0.580685
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.580685

9.39.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 19

9.39.19.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2

Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.39.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.207983[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.188 mg/kg$_{bw}$/day	-	0.468875
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.468875

9.39.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 19

9.39.20.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.39.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.913 mg/kg$_{bw}$/day	-	0.281325
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.281325

9.39.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 2

9.39.21.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%

Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.39.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	3.906 $mg/kg_{bw}/day$	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- $mg/kg_{bw}/day$	-	0.574383

9.39.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 2

9.39.22.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.39.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	2.343 $mg/kg_{bw}/day$	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.34463

9.39.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 2

9.39.23.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.39.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	3.145 $mg/kg_{bw}/day$	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- $mg/kg_{bw}/day$	-	0.462572

9.39.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 2

9.39.24.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.39.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.887 $mg/kg_{bw}/day$	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.277543

9.39.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 3

9.39.25.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.39.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.10084[1]
inhalation, long-term systemic	35.481 mg/m^3	47.6 mg/m^3	0.745404[1]
Combined routes	5.754 mg/kg_{bw}/day	-	0.846245
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.745404
Combined routes	- mg/kg_{bw}/day	-	0.846245

9.39.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 3

9.39.26.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.39.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m^3	47.6 mg/m^3	0.447243[1]
Combined routes	3.453 mg/kg_{bw}/day	-	0.507747
Total result			
dermal	-	-	0.060504

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.39.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 3

9.39.27.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.39.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.234 mg/kg$_{bw}$/day	-	0.622623
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.622623

9.39.28 Contributing Scenario (28) controlling industrial worker exposure for PROC 3

9.39.28.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.39.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	2.54 mg/kg$_{bw}$/day	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.373574

9.39.29 Contributing Scenario (29) controlling industrial worker exposure for PROC 4

9.39.29.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.39.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	7.096 mg/m³	47.6 mg/m³	0.149081[1]
Combined routes	1.151 mg/kg$_{bw}$/day	-	0.169249
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.149081
Combined routes	- mg/kg$_{bw}$/day	-	0.169249

9.39.30 Contributing Scenario (30) controlling industrial worker exposure for PROC 4

9.39.30.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.39.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	4.258 mg/m³	47.6 mg/m³	0.089449[1]
Combined routes	0.690536 mg/kg$_{bw}$/day	-	0.101549
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.089449
Combined routes	- mg/kg$_{bw}$/day	-	0.101549

9.39.31 Contributing Scenario (31) controlling industrial worker exposure for PROC 4

9.39.31.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.39.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	4.967 mg/m³	47.6 mg/m³	0.104357[1]
Combined routes	2.081 mg/kg$_{bw}$/day	-	0.306037
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.104357
Combined routes	- mg/kg$_{bw}$/day	-	0.306037

9.39.32 Contributing Scenario (32) controlling industrial worker exposure for PROC 4

9.39.32.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %

Respiratory protection	no

9.39.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	29.804 mg/m³	47.6 mg/m³	0.62614[1]
Combined routes	5.081 mg/kg$_{bw}$/day	-	0.747148
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.62614
Combined routes	- mg/kg$_{bw}$/day	-	0.747148

9.39.33 Contributing Scenario (33) controlling industrial worker exposure for PROC 5

9.39.33.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.39.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.39.34 Contributing Scenario (34) controlling industrial worker exposure for PROC 5

9.39.34.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors

Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.39.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	1.603 mg/kg$_{bw}$/day	-	0.235722
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.235722

9.39.35 Contributing Scenario (35) controlling industrial worker exposure for PROC 5

9.39.35.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.39.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	2.672 mg/kg$_{bw}$/day	-	0.39287
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.39287

9.39.36 Contributing Scenario (36) controlling industrial worker exposure for PROC 5

9.39.36.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)

Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.39.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	3.145 $mg/kg_{bw}/day$	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- $mg/kg_{bw}/day$	-	0.462572

9.39.37 Contributing Scenario (37) controlling industrial worker exposure for PROC 5

9.39.37.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.39.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.887 $mg/kg_{bw}/day$	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.277543

9.39.38 Contributing Scenario (38) controlling industrial worker exposure for PROC 7

9.39.38.1 Conditions of use

Name of contributing scenario	PROC 7 Industrial spraying

Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,500 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	no

9.39.38.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.214286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.031513[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	2.749 $mg/kg_{bw}/day$	-	0.404215
Total result			
dermal	-	-	0.031513
inhalation	-	-	0.372702
Combined routes	- $mg/kg_{bw}/day$	-	0.404215

9.39.39 Contributing Scenario (39) controlling industrial worker exposure for PROC 7

9.39.39.1 Conditions of use

Name of contributing scenario	PROC 7 Industrial spraying
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,500 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.39.39.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.128571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.018908[1]
inhalation, long-term systemic	1.064 mg/m^3	47.6 mg/m^3	0.022362[1]
Combined routes	0.280634 $mg/kg_{bw}/day$	-	0.04127
Total result			
dermal	-	-	0.018908
inhalation	-	-	0.022362
Combined routes	- $mg/kg_{bw}/day$	-	0.04127

9.39.40 Contributing Scenario (40) controlling industrial worker exposure for PROC 7

9.39.40.1 Conditions of use

Name of contributing scenario	PROC 7 Industrial spraying
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,500 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.39.40.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.214286 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.031513[1]
inhalation, long-term systemic	1.774 mg/m^3	47.6 mg/m^3	0.03727[1]
Combined routes	0.467723 $mg/kg_{bw}/day$	-	0.068783
Total result			
dermal	-	-	0.031513
inhalation	-	-	0.03727
Combined routes	- $mg/kg_{bw}/day$	-	0.068783

9.39.41 Contributing Scenario (41) controlling industrial worker exposure for PROC 7

9.39.41.1 Conditions of use

Name of contributing scenario	PROC 7 Industrial spraying
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,500 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.39.41.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.128571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.018908[1]
inhalation, long-term systemic	1.064 mg/m^3	47.6 mg/m^3	0.022362[1]
Combined routes	0.280634 $mg/kg_{bw}/day$	-	0.04127
Total result			
dermal	-	-	0.018908

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.022362
Combined routes	- mg/kg$_{bw}$/day	-	0.04127

9.39.42 Contributing Scenario (42) controlling industrial worker exposure for PROC 7

9.39.42.1 Conditions of use

Name of contributing scenario	PROC 7 Industrial spraying
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,500 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.39.42.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.378151[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	4.7 mg/kg$_{bw}$/day	-	0.691221
Total result			
dermal	-	-	0.378151
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.691221

9.39.43 Contributing Scenario (43) controlling industrial worker exposure for PROC 7

9.39.43.1 Conditions of use

Name of contributing scenario	PROC 7 Industrial spraying
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,500 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	95 %

9.39.43.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	4.286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.630252[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	6.06 mg/kg$_{bw}$/day	-	0.891144
Total result			
dermal	-	-	0.630252
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.891144

9.39.44 Contributing Scenario (44) controlling industrial worker exposure for PROC 8B

9.39.44.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.39.44.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	4.263 mg/kg$_{bw}$/day	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.626983

9.39.45 Contributing Scenario (45) controlling industrial worker exposure for PROC 8B

9.39.45.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.39.45.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	5.322 mg/m³	47.6 mg/m³	0.111811[1]
Combined routes	0.897455 mg/kg$_{bw}$/day	-	0.131979
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.111811
Combined routes	- mg/kg$_{bw}$/day	-	0.131979

9.39.46 Contributing Scenario (46) controlling industrial worker exposure for PROC 8B

9.39.46.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.39.46.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	3.193 mg/m³	47.6 mg/m³	0.067086[1]
Combined routes	0.538473 mg/kg$_{bw}$/day	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- mg/kg$_{bw}$/day	-	0.079187

9.39.47 Contributing Scenario (47) controlling industrial worker exposure for PROC 8B

9.39.47.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %

Respiratory protection	90 %

9.39.47.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	3.807 mg/kg$_{bw}$/day	-	0.559896
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.559896

9.39.48 Contributing Scenario (48) controlling industrial worker exposure for PROC 8B

9.39.48.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.39.48.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	2.284 mg/kg$_{bw}$/day	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.335938

9.39.49 Contributing Scenario (49) controlling industrial worker exposure for PROC 9

9.39.49.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.39.49.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	14.193 mg/m³	47.6 mg/m³	0.298162[1]
Combined routes	3.399 mg/kg$_{bw}$/day	-	0.499842
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.298162
Combined routes	- mg/kg$_{bw}$/day	-	0.499842

9.39.50 Contributing Scenario (50) controlling industrial worker exposure for PROC 9

9.39.50.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.39.50.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	25.547 mg/m³	47.6 mg/m³	0.536691[1]
Combined routes	4.472 mg/kg$_{bw}$/day	-	0.6577
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.536691
Combined routes	- mg/kg$_{bw}$/day	-	0.6577

9.39.51 Contributing Scenario (51) controlling industrial worker exposure for PROC 9

9.39.51.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%

Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.39.51.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.020168[1]
inhalation, long-term systemic	14.193 mg/m^3	47.6 mg/m^3	0.298162[1]
Combined routes	2.165 $mg/kg_{bw}/day$	-	0.31833
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.298162
Combined routes	- $mg/kg_{bw}/day$	-	0.31833

9.39.52 Contributing Scenario (52) controlling industrial worker exposure for PROC 9

9.39.52.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.39.52.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	9.935 mg/m^3	47.6 mg/m^3	0.208713[1]
Combined routes	2.791 $mg/kg_{bw}/day$	-	0.410394
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.208713
Combined routes	- $mg/kg_{bw}/day$	-	0.410394

9.39.53 Contributing Scenario (53) controlling industrial worker exposure for PROC 9

9.39.53.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.39.53.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	5.961 mg/m^3	47.6 mg/m^3	0.125228[1]
Combined routes	1.674 $mg/kg_{bw}/day$	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- $mg/kg_{bw}/day$	-	0.246236

9.40 Scenario 40: Up to 35% aqueous: Industrial end-use of anhydrous and aqueous ammonia (reactive agent/processing aid and for general chemical applications, e.g., extraction, water treatment/septicity control, pH/neutralising agent) (ES-4 PROC 1, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Up to 35% aqueous: Industrial end-use of anhydrous and aqueous ammonia (reactive agent/processing aid and for general chemical applications, e.g., extraction, water treatment/septicity control, pH/neutralising agent) (ES-4 PROC 1, ES-4 PROC 19, ES-4 PROC 2, ES-4 PROC 3, ES-4 PROC 4, ES-4 PROC 8b, ES-4 PROC 9, ES-4 ERC 6b)
Systematic title based on use descriptor	ERC 6B; PROC 1, 19, 2, 3, 4, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 6b Industrial use of reactive processing aids
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 19 - Hand-mixing with intimate contact (only PPE available) PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.40.1 Contributing Scenario (1) controlling environmental exposure for ERC 6B

9.40.1.1 Conditions of use

Operational conditions	
Annual tonnage	3.55E5 to/year
Daily amount used at site	14.575 kg/day
Release times per year	100 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.0001 %
Release fraction to wastewater from process	0.050 %
Release fraction to soil from process	0 %
Fraction tonnage to region	0.470 %
Fraction used at main source	0.249837 % *(Max. tonnage biggest customer: 354631 tpa / 400 companies = 886 tpa)*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: 100 % reduction of emission from sludge to soil. Rationale: Sludges of industrial firms will be incinerated or discharged according to national safety regulations.)*

SpERC	NH-4 - 6b (spERC -6b – NH4 Release time per year: 100 [20, 100, 300]. Assumed number of production days per year. Fraction main source: 0.25% (Default 100%). The substance is industrially used by 400 companies indicating a fraction main source of 0.25%. Fraction tonnage to region: 0.47% (Default 100%). Ratio of total tonnage 354631 tpa to regional tonnage 25000 tpa. Release to air: 0.0001% (Default: 0.1%). Emissions of the substance to air from industrial processes are considered well controlled by industrial firm measures, i.e. ventilation of ambient air through filters (discharged after use), following national safety regulations. Release water: 0.05% (Default: 5%). During industrial and subsequent waste water treatment, the substance is completely biologically transformed into mineral nitrogen components, as a part of the nitrogen cycle in STPs. Hence release to environmental surface waters is 0%. 5/100 = 0.05% was set arbitrarily. Release to soil: 0% (Default: 0.025%). Sludges of industrial firms will be incinerated or discharged according to national safety regulations. Hence there will be no released to soil (0%).

9.40.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.40.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	0.000018 mg/L	0.00135 mg/L	0.013024[1]	1,119.069
Marine water	1.79E-6 mg/L	0.00135 mg/L	0.001328[1]	1.10E4
Total result				
Freshwater	0.000018 mg/L	-	0.013024	1,119.069
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	1.79E-6 mg/L	-	0.001328	1.10E4
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.40.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000214 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.009674[1]	1,506.6
Total result				
Agricultural soil	0.000214 mg/kg_{dwt}	-	-	1,506.6

9.40.2 Contributing Scenario (2) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)
9.40.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No

Respiratory protection	no

9.40.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.00298 mg/m³	47.6 mg/m³	0.000063[1]
Combined routes	0.020997 mg/kg$_{bw}$/day	-	0.003088
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000063
Combined routes	- mg/kg$_{bw}$/day	-	0.003088

9.40.3 Contributing Scenario (3) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.40.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.40.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.004258 mg/m³	47.6 mg/m³	0.000089[1]
Combined routes	0.02118 mg/kg$_{bw}$/day	-	0.003115
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000089
Combined routes	- mg/kg$_{bw}$/day	-	0.003115

9.40.4 Contributing Scenario (4) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.40.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.40.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.004967 mg/m³	47.6 mg/m³	0.000104[1]
Combined routes	0.034995 mg/kg$_{bw}$/day	-	0.005146
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000104
Combined routes	- mg/kg$_{bw}$/day	-	0.005146

9.40.5 Contributing Scenario (5) controlling industrial worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.40.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.40.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.007096 mg/m³	47.6 mg/m³	0.000149[1]
Combined routes	0.035299 mg/kg$_{bw}$/day	-	0.005191
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.000149
Combined routes	- mg/kg$_{bw}$/day	-	0.005191

9.40.6 Contributing Scenario (6) controlling industrial worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.40.6.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	1 - 4 hours

Exposed skin surface	1,980 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.*
Respiratory protection	95 %

9.40.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	5.322 mg/m^3	47.6 mg/m^3	0.111811[1]
Combined routes	1.609 $mg/kg_{bw}/day$	-	0.236601
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.111811
Combined routes	- $mg/kg_{bw}/day$	-	0.236601

9.40.7 Contributing Scenario (7) controlling industrial worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.40.7.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.40.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.207983[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	3.949 $mg/kg_{bw}/day$	-	0.580685
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.372702
Combined routes	- $mg/kg_{bw}/day$	-	0.580685

9.40.8 Contributing Scenario (8) controlling industrial worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.40.8.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available

Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default)) *(justification: Minimum protection limit.)*
Respiratory protection	no

9.40.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.207983[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	3.949 $mg/kg_{bw}/day$	-	0.580685
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.372702
Combined routes	- $mg/kg_{bw}/day$	-	0.580685

9.40.9 Contributing Scenario (9) controlling industrial worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.40.9.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.40.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.207983[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	3.188 $mg/kg_{bw}/day$	-	0.468875
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.260892
Combined routes	- $mg/kg_{bw}/day$	-	0.468875

9.40.10 Contributing Scenario (10) controlling industrial worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.40.10.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.40.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	7.451 mg/m^3	47.6 mg/m^3	0.156535[1]
Combined routes	1.913 $mg/kg_{bw}/day$	-	0.281325
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.156535
Combined routes	- $mg/kg_{bw}/day$	-	0.281325

9.40.11 Contributing Scenario (11) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.40.11.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.40.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	3.906 $mg/kg_{bw}/day$	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.40.12 Contributing Scenario (12) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.40.12.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.40.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.343 mg/kg$_{bw}$/day	-	0.34463
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.34463

9.40.13 Contributing Scenario (13) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.40.13.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.40.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.40.14 Contributing Scenario (14) controlling industrial worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.40.14.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.40.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.40.15 Contributing Scenario (15) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.40.15.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.40.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	5.754 mg/kg$_{bw}$/day	-	0.846245
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.846245

9.40.16 Contributing Scenario (16) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.40.16.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.40.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.453 mg/kg$_{bw}$/day	-	0.507747
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.507747

9.40.17 Contributing Scenario (17) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.40.17.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No

Respiratory protection	no

9.40.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.234 mg/kg$_{bw}$/day	-	0.622623
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.622623

9.40.18 Contributing Scenario (18) controlling industrial worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.40.18.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.40.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.54 mg/kg$_{bw}$/day	-	0.373574
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.373574

9.40.19 Contributing Scenario (19) controlling industrial worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.40.19.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors

Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.40.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	7.096 mg/m³	47.6 mg/m³	0.149081[1]
Combined routes	1.151 mg/kg$_{bw}$/day	-	0.169249
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.149081
Combined routes	- mg/kg$_{bw}$/day	-	0.169249

9.40.20 Contributing Scenario (20) controlling industrial worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.40.20.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.40.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	4.258 mg/m³	47.6 mg/m³	0.089449[1]
Combined routes	0.690536 mg/kg$_{bw}$/day	-	0.101549
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.089449
Combined routes	- mg/kg$_{bw}$/day	-	0.101549

9.40.21 Contributing Scenario (21) controlling industrial worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.40.21.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	> 4 hours (default)

Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.40.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	4.967 mg/m^3	47.6 mg/m^3	0.104357[1]
Combined routes	2.081 $mg/kg_{bw}/day$	-	0.306037
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.104357
Combined routes	- $mg/kg_{bw}/day$	-	0.306037

9.40.22 Contributing Scenario (22) controlling industrial worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.40.22.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.40.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	29.804 mg/m^3	47.6 mg/m^3	0.62614[1]
Combined routes	5.081 $mg/kg_{bw}/day$	-	0.747148
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.62614
Combined routes	- $mg/kg_{bw}/day$	-	0.747148

9.40.23 Contributing Scenario (23) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.40.23.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities

Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.40.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	4.263 $mg/kg_{bw}/day$	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.626983

9.40.24 Contributing Scenario (24) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.40.24.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.40.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.020168[1]
inhalation, long-term systemic	5.322 mg/m^3	47.6 mg/m^3	0.111811[1]
Combined routes	0.897455 $mg/kg_{bw}/day$	-	0.131979
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.111811

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
Combined routes	- mg/kg$_{bw}$/day	-	0.131979

9.40.25 Contributing Scenario (25) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.40.25.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Local exhaust ventilation	yes (inhalation 95 %; dermal 95 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.40.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.082286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.012101[1]
inhalation, long-term systemic	3.193 mg/m³	47.6 mg/m³	0.067086[1]
Combined routes	0.538473 mg/kg$_{bw}$/day	-	0.079187
Total result			
dermal	-	-	0.012101
inhalation	-	-	0.067086
Combined routes	- mg/kg$_{bw}$/day	-	0.079187

9.40.26 Contributing Scenario (26) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.40.26.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.40.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	3.807 mg/kg$_{bw}$/day	-	0.559896

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.559896

9.40.27 Contributing Scenario (27) controlling industrial worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.40.27.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.40.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	4.471 mg/m³	47.6 mg/m³	0.093921[1]
Combined routes	2.284 mg/kg$_{bw}$/day	-	0.335938
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.093921
Combined routes	- mg/kg$_{bw}$/day	-	0.335938

9.40.28 Contributing Scenario (28) controlling industrial worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.40.28.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.40.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	14.193 mg/m³	47.6 mg/m³	0.298162[1]
Combined routes	3.399 mg/kg$_{bw}$/day	-	0.499842
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.298162
Combined routes	- mg/kg$_{bw}$/day	-	0.499842

9.40.29 Contributing Scenario (29) controlling industrial worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.40.29.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm²
Location	indoors
Ventilation	enhanced (70%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.40.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	25.547 mg/m³	47.6 mg/m³	0.536691[1]
Combined routes	4.472 mg/kg$_{bw}$/day	-	0.6577
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.536691
Combined routes	- mg/kg$_{bw}$/day	-	0.6577

9.40.30 Contributing Scenario (30) controlling industrial worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.40.30.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm²
Location	indoors
Local exhaust ventilation	yes (inhalation 90 %; dermal 90 %)
Protective gloves	Gloves APF 5 80 %

Respiratory protection	no

9.40.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.137143 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.020168[1]
inhalation, long-term systemic	14.193 mg/m³	47.6 mg/m³	0.298162[1]
Combined routes	2.165 mg/kg$_{bw}$/day	-	0.31833
Total result			
dermal	-	-	0.020168
inhalation	-	-	0.298162
Combined routes	- mg/kg$_{bw}$/day	-	0.31833

9.40.31 Contributing Scenario (31) controlling industrial worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.40.31.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.40.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	9.935 mg/m³	47.6 mg/m³	0.208713[1]
Combined routes	2.791 mg/kg$_{bw}$/day	-	0.410394
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.208713
Combined routes	- mg/kg$_{bw}$/day	-	0.410394

9.40.32 Contributing Scenario (32) controlling industrial worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.40.32.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.40.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	5.961 mg/m³	47.6 mg/m³	0.125228[1]
Combined routes	1.674 mg/kg$_{bw}$/day	-	0.246236
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.125228
Combined routes	- mg/kg$_{bw}$/day	-	0.246236

9.42 Scenario 42: Up to 35% aqueous: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (formulation of mixtures) (ES-5 PROC 1, ES-5 PROC 15, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 5, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Up to 35% aqueous: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (formulation of mixtures) (ES-5 PROC 1, ES-5 PROC 15, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 5, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b)
Systematic title based on use descriptor	ERC 8B; PROC 1, 15, 19, 2, 3, 5, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 8b Wide dispersive indoor use of reactive substances in open systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 15 - Use of laboratory reagents in small scale laboratories PROC 19 - Hand-mixing with intimate contact (only PPE available) PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 5 - Mixing or blending in batch processes (multistage and/or significant contact) PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.42.1 Contributing Scenario (1) controlling environmental exposure for ERC 8B

9.42.1.1 Conditions of use

Operational conditions	
Annual tonnage	2.50E4 to/year
Daily amount used at site	84.959 kg/day
Release times per year	365 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.100 %
Release fraction to wastewater from process	2 %
Release fraction to soil from process	0 %
Fraction tonnage to region	10 %
Fraction used at main source	3.544 % *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter. Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges will be oxidized or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*

No direct discharge to freshwater compartment *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.*
Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.

9.42.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.42.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	8.57E-6 mg/L	0.00135 mg/L	0.00635[1]	1.34E4
Marine water	0.000211 mg/L	0.00135 mg/L	0.156272[1]	543.66
Total result				
Freshwater	8.57E-6 mg/L	-	0.00635	1.34E4
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	0.000211 mg/L	-	0.156272	543.66
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.42.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000215 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.009716[1]	8,743.803
Total result				
Agricultural soil	0.000215 mg/kg_{dwt}	-	-	8,743.803

9.42.2 Contributing Scenario (2) controlling professional worker exposure for PROC 1 (PC 20, PC 21, PC 40)
9.42.2.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.2.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.029804 mg/m³	47.6 mg/m³	0.000626[1]
Combined routes	0.024829 mg/kg$_{bw}$/day	-	0.003651
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000626
Combined routes	- mg/kg$_{bw}$/day	-	0.003651

9.42.3 Contributing Scenario (3) controlling professional worker exposure for PROC 1 (PC 20, PC 21, PC 40)

9.42.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.003025[1]
inhalation, long-term systemic	0.042578 mg/m³	47.6 mg/m³	0.000894[1]
Combined routes	0.026654 mg/kg$_{bw}$/day	-	0.00392
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000894
Combined routes	- mg/kg$_{bw}$/day	-	0.00392

9.42.4 Contributing Scenario (4) controlling professional worker exposure for PROC 1 (PC 20, PC 21, PC 40)

9.42.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	No
Respiratory protection	no

9.42.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.049674 mg/m³	47.6 mg/m³	0.001044[1]
Combined routes	0.041382 mg/kg$_{bw}$/day	-	0.006086
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.001044
Combined routes	- mg/kg$_{bw}$/day	-	0.006086

9.42.5 Contributing Scenario (5) controlling professional worker exposure for PROC 1 (PC 20, PC 21, PC 40)

9.42.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.070963 mg/m³	47.6 mg/m³	0.001491[1]
Combined routes	0.044423 mg/kg$_{bw}$/day	-	0.006533
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.001491
Combined routes	- mg/kg$_{bw}$/day	-	0.006533

9.42.6 Contributing Scenario (6) controlling professional worker exposure for PROC 15 (PC 20, PC 21, PC 40)

9.42.6.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Concentration in substance	>25%
Duration of activity	1 - 4 hours

Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.205714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.030252[1]
inhalation, long-term systemic	21.289 mg/m^3	47.6 mg/m^3	0.447243[1]
Combined routes	3.247 $mg/kg_{bw}/day$	-	0.477495
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.447243
Combined routes	- $mg/kg_{bw}/day$	-	0.477495

9.42.7 Contributing Scenario (7) controlling professional worker exposure for PROC 15 (PC 20, PC 21, PC 40)

9.42.7.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.205714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.030252[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.335 $mg/kg_{bw}/day$	-	0.343322
Total result			
dermal	-	-	0.030252
inhalation	-	-	0.31307
Combined routes	- $mg/kg_{bw}/day$	-	0.343322

9.42.8 Contributing Scenario (8) controlling professional worker exposure for PROC 15 (PC 20, PC 21, PC 40)

9.42.8.1 Conditions of use

Name of contributing scenario	PROC 15 Use of laboratory reagents in small scale laboratories
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.342857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.05042[1]
inhalation, long-term systemic	24.837 mg/m^3	47.6 mg/m^3	0.521783[1]
Combined routes	3.891 $mg/kg_{bw}/day$	-	0.572203
Total result			
dermal	-	-	0.05042
inhalation	-	-	0.521783
Combined routes	- $mg/kg_{bw}/day$	-	0.572203

9.42.9 Contributing Scenario (9) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.42.9.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.42.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.12479[1]
inhalation, long-term systemic	21.289 mg/m^3	47.6 mg/m^3	0.447243[1]
Combined routes	3.89 $mg/kg_{bw}/day$	-	0.572033
Total result			

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
dermal	-	-	0.12479
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.572033

9.42.10 Contributing Scenario (10) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.42.10.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.42.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	1.761 mg/kg$_{bw}$/day	-	0.258963
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.258963

9.42.11 Contributing Scenario (11) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.42.11.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.42.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.977 mg/kg$_{bw}$/day	-	0.43786
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.43786

9.42.12 Contributing Scenario (12) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.42.12.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm²
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.42.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.207983[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	6.483 mg/kg$_{bw}$/day	-	0.953388
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.953388

9.42.13 Contributing Scenario (13) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.42.13.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm²
Location	indoors
Domain	professional

Local exhaust ventilation	yes (inhalation 80 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.42.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.207983[1]
inhalation, long-term systemic	7.096 mg/m³	47.6 mg/m³	0.149081[1]
Combined routes	2.428 mg/kg$_{bw}$/day	-	0.357064
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.149081
Combined routes	- mg/kg$_{bw}$/day	-	0.357064

9.42.14 Contributing Scenario (14) controlling professional worker exposure for PROC 19 (PC 20, PC 21, PC 40)

9.42.14.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.42.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.207983[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.962 mg/kg$_{bw}$/day	-	0.729766
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.729766

9.42.15 Contributing Scenario (15) controlling professional worker exposure for PROC 2 (PC 20, PC 21, PC 40)

9.42.15.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%

Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	21.289 mg/m^3	47.6 mg/m^3	0.447243[1]
Combined routes	3.864 $mg/kg_{bw}/day$	-	0.568251
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.447243
Combined routes	- $mg/kg_{bw}/day$	-	0.568251

9.42.16 Contributing Scenario (16) controlling professional worker exposure for PROC 2 (PC 20, PC 21, PC 40)

9.42.16.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.952 $mg/kg_{bw}/day$	-	0.434078
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.31307
Combined routes	- $mg/kg_{bw}/day$	-	0.434078

9.42.17 Contributing Scenario (17) controlling professional worker exposure for PROC 2 (PC 20, PC 21, PC 40)

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.201681[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	6.44 mg/kg_{bw}/day	-	0.947085
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.745404
Combined routes	- mg/kg_{bw}/day	-	0.947085

9.42.18 Contributing Scenario (18) controlling professional worker exposure for PROC 2 (PC 20, PC 21, PC 40)

9.42.18.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg_{bw}/day	6.8 mg/kg_{bw}/day	0.201681[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.92 mg/kg_{bw}/day	-	0.723464
Total result			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal	-	-	0.201681
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.723464

9.42.19 Contributing Scenario (19) controlling professional worker exposure for PROC 3 (PC 20, PC 21, PC 40)
9.42.19.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	42.578 mg/m^3	47.6 mg/m^3	0.894485[1]
Combined routes	6.494 mg/kg$_{bw}$/day	-	0.95499
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.894485
Combined routes	- mg/kg$_{bw}$/day	-	0.95499

9.42.20 Contributing Scenario (20) controlling professional worker exposure for PROC 3 (PC 20, PC 21, PC 40)
9.42.20.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	29.804 mg/m³	47.6 mg/m³	0.62614[1]
Combined routes	4.669 mg/kg$_{bw}$/day	-	0.686644
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.62614
Combined routes	- mg/kg$_{bw}$/day	-	0.686644

9.42.21 Contributing Scenario (21) controlling professional worker exposure for PROC 3 (PC 20, PC 21, PC 40)

9.42.21.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.42.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.727 mg/kg$_{bw}$/day	-	0.548083
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.548083

9.42.22 Contributing Scenario (22) controlling professional worker exposure for PROC 3 (PC 20, PC 21, PC 40)

9.42.22.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2

Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	90 %

9.42.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	4.967 mg/m³	47.6 mg/m³	0.104357[1]
Combined routes	1.395 mg/kg$_{bw}$/day	-	0.205197
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.104357
Combined routes	- mg/kg$_{bw}$/day	-	0.205197

9.42.23 Contributing Scenario (23) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.42.23.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm²
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.42.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.952 mg/kg$_{bw}$/day	-	0.434078
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.434078

9.42.24 Contributing Scenario (24) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.42.24.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (inhalation 80 %; dermal 80 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.42.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.164571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.024202[1]
inhalation, long-term systemic	4.258 mg/m^3	47.6 mg/m^3	0.089449[1]
Combined routes	0.772821 $mg/kg_{bw}/day$	-	0.11365
Total result			
dermal	-	-	0.024202
inhalation	-	-	0.089449
Combined routes	- $mg/kg_{bw}/day$	-	0.11365

9.42.25 Contributing Scenario (25) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.42.25.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.42.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	2.952 $mg/kg_{bw}/day$	-	0.434078
Total result			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal	-	-	0.121008
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.434078

9.42.26 Contributing Scenario (26) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.42.26.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.42.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	35.481 mg/m^3	47.6 mg/m^3	0.745404[1]
Combined routes	6.44 mg/kg$_{bw}$/day	-	0.947085
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.947085

9.42.27 Contributing Scenario (27) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.42.27.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.42.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	2.892 mg/kg$_{bw}$/day	-	0.425302
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.425302

9.42.28 Contributing Scenario (28) controlling professional worker exposure for PROC 5 (PC 20, PC 21, PC 40)

9.42.28.1 Conditions of use

Name of contributing scenario	PROC 5 Mixing or blending in batch processes (multistage and/or significant contact)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.42.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.92 mg/kg$_{bw}$/day	-	0.723464
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.723464

9.42.29 Contributing Scenario (29) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.42.29.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)

Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.42.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	6.208 mg/kg$_{bw}$/day	-	0.912881
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.912881

9.42.30 Contributing Scenario (30) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.42.30.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.42.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	2.71 mg/kg$_{bw}$/day	-	0.398552
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.398552

9.42.31 Contributing Scenario (31) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.42.31.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities

Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.42.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	5.277 $mg/kg_{bw}/day$	-	0.776064
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.372702
Combined routes	- $mg/kg_{bw}/day$	-	0.776064

9.42.32 Contributing Scenario (32) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.42.32.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.42.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	4.517 $mg/kg_{bw}/day$	-	0.664253
Total result			
dermal	-	-	0.403361

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.664253

9.42.33 Contributing Scenario (33) controlling professional worker exposure for PROC 8B (PC 20, PC 21, PC 40)

9.42.33.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.42.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	4.517 mg/kg$_{bw}$/day	-	0.664253
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.664253

9.42.34 Contributing Scenario (34) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.42.34.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.42.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	5.385 mg/kg$_{bw}$/day	-	0.791872
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.791872

9.42.35 Contributing Scenario (35) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.42.35.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.42.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.42.36 Contributing Scenario (36) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.42.36.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional

Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.42.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.42.37 Contributing Scenario (37) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.42.37.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.42.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.42.38 Contributing Scenario (38) controlling professional worker exposure for PROC 9 (PC 20, PC 21, PC 40)

9.42.38.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)

Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.42.38.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	3.145 $mg/kg_{bw}/day$	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- $mg/kg_{bw}/day$	-	0.462572

9.45 Scenario 45: Up to 35% aqueous: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (reactive agent/processing aid, general chemical applications, e.g., pH/neutralising agent, water treatment) (ES-5 PROC 1, ES-5 PROC 10, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 4, ES-5 PROC 8a, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b, ES-5 ERC 8e)

This scenario is described by the following combinations of use descriptors. The corresponding contributing scenarios are described in the respective subchapters.

Free short title	Up to 35% aqueous: Wide dispersive end-use: Professional uses of anhydrous and aqueous ammonia (reactive agent/processing aid, general chemical applications, e.g., pH/neutralising agent, water treatment) (ES-5 PROC 1, ES-5 PROC 10, ES-5 PROC 19, ES-5 PROC 2, ES-5 PROC 3, ES-5 PROC 4, ES-5 PROC 8a, ES-5 PROC 8b, ES-5 PROC 9, ES-5 ERC 8b, ES-5 ERC 8e)
Systematic title based on use descriptor	ERC 8B, 8E; PROC 1, 10, 19, 2, 3, 4, 8A, 8B, 9
Name of contributing environmental scenario and corresponding ERC	ERC 8b Wide dispersive indoor use of reactive substances in open systems ERC 8e Wide dispersive outdoor use of reactive substances in open systems
Name(s) of contributing worker scenarios and corresponding PROCs	PROC 1 - Use in closed process, no likelihood of exposure PROC 10 - Roller application or brushing PROC 19 - Hand-mixing with intimate contact (only PPE available) PROC 2 - Use in closed, continuous process with occasional controlled exposure PROC 3 - Use in closed batch process (synthesis or formulation) PROC 4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8a - Transfer of chemicals from/to vessels/ large containers at non dedicated facilities PROC 8b - Transfer of chemicals from/to vessels/ large containers at dedicated facilities PROC 9 - Transfer of chemicals into small containers (dedicated filling line)

9.45.1 Contributing Scenario (1) controlling environmental exposure for ERC 8B

9.45.1.1 Conditions of use

Operational conditions	
Annual tonnage	2.50E4 to/year
Daily amount used at site	84.959 kg/day
Release times per year	365 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.100 %
Release fraction to wastewater from process	2 %
Release fraction to soil from process	0 %
Fraction tonnage to region	10 %
Fraction used at main source	3.544 % *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter. Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	

Reduction of sludge to soil	100 % *(justification: Sludges will be oxidized or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*
No direct discharge to freshwater compartment *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter. Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*	

9.45.1.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.45.1.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	8.57E-6 mg/L	0.00135 mg/L	0.00635[1]	1.34E4
Marine water	0.000211 mg/L	0.00135 mg/L	0.156272[1]	543.66
Total result				
Freshwater	8.57E-6 mg/L	-	0.00635	1.34E4
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	0.000211 mg/L	-	0.156272	543.66
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.45.1.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000215 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.009716[1]	8,743.803
Total result				
Agricultural soil	0.000215 mg/kg_{dwt}	-	-	8,743.803

9.45.2 Contributing Scenario (2) controlling environmental exposure for ERC 8E
9.45.2.1 Conditions of use

Operational conditions	
Annual tonnage	2.50E4 to/year
Daily amount used at site	84.959 kg/day
Release times per year	365 days/year
Local freshwater dilution factor	10
Local marine water dilution factor	100
Release fraction to air from process	0.100 %
Release fraction to wastewater from process	2 %
Release fraction to soil from process	0 %
Fraction tonnage to region	10 %

Fraction used at main source	3.544 % *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter.* *Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*
STP	yes (municipal)
River flow rate	18000 m³/day
Municipal sewage treatment plant discharge	2000 m³/day
Risk management measures	
Reduction of sludge to soil	100 % *(justification: Sludges will be oxidized or discharged according to national safety regulations. Hence there will be no released to soil (0%).)*
No direct discharge to freshwater compartment *(justification: The majority of ammonia in the environment originates from natural sources, predominantly decaying organic matter. Wide dispersive professional uses of ammonia are diverse and widespread. The resulting environmental exposure is not expected to add significantly to already present background levels of ammonia in the environment. An additional assessment for environmental exposure for wide dispersive uses has therefore not been performed.*	

9.45.2.2 Exposure and risks for workers for the environment and man via the environment
The quantitative risk characterisation for this environmental exposure has been calculated using EasyTRA.
The environmental exposure calculation per compartment is based on the algorithms of the EU TGD 2003 Risk Assessment Spreadsheet Model 1.24a.

9.45.2.3 Aquatic compartment (including sediment)
Environmental risk aquatic of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Freshwater	8.57E-6 mg/L	0.00135 mg/L	0.00635[1]	1.34E4
Marine water	0.000211 mg/L	0.00135 mg/L	0.156272[1]	543.66
Total result				
Freshwater	8.57E-6 mg/L	-	0.00635	1.34E4
Freshwater sediment	- mg/kg_{dwt}	-	-	-
Marine water	0.000211 mg/L	-	0.156272	543.66
Marine water sediment	- mg/kg_{dwt}	-	-	-

9.45.2.4 Terrestrial compartment
Environmental risk terrestrial of the ES

Compartments	**PEC**	**PNEC**	**RCR* = PEC/PNEC**	**MSafe kg/d**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)				
Agricultural soil	0.000215 mg/kg_{dwt}	0.0221 mg/kg_{dwt}	0.009716[1]	8,743.803
Total result				
Agricultural soil	0.000215 mg/kg_{dwt}	-	-	8,743.803

9.45.3 Contributing Scenario (3) controlling professional worker exposure for PROC 1 (PC 20, PC 37, PC 40)
9.45.3.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure

Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.45.3.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.003025[1]
inhalation, long-term systemic	0.029804 mg/m^3	47.6 mg/m^3	0.000626[1]
Combined routes	0.024829 $mg/kg_{bw}/day$	-	0.003651
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000626
Combined routes	- $mg/kg_{bw}/day$	-	0.003651

9.45.4 Contributing Scenario (4) controlling professional worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.45.4.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.45.4.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.020571 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.003025[1]
inhalation, long-term systemic	0.042578 mg/m^3	47.6 mg/m^3	0.000894[1]
Combined routes	0.026654 $mg/kg_{bw}/day$	-	0.00392
Total result			
dermal	-	-	0.003025
inhalation	-	-	0.000894

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.00392

9.45.5 Contributing Scenario (5) controlling professional worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.45.5.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.45.5.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]
inhalation, long-term systemic	0.049674 mg/m³	47.6 mg/m³	0.001044[1]
Combined routes	0.041382 mg/kg$_{bw}$/day	-	0.006086
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.001044
Combined routes	- mg/kg$_{bw}$/day	-	0.006086

9.45.6 Contributing Scenario (6) controlling professional worker exposure for PROC 1 (PC 20, PC 37, PC 40)

9.45.6.1 Conditions of use

Name of contributing scenario	PROC 1 Use in closed process, no likelihood of exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.45.6.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.034286 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.005042[1]

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
inhalation, long-term systemic	0.070963 mg/m³	47.6 mg/m³	0.001491[1]
Combined routes	0.044423 mg/kg$_{bw}$/day	-	0.006533
Total result			
dermal	-	-	0.005042
inhalation	-	-	0.001491
Combined routes	- mg/kg$_{bw}$/day	-	0.006533

9.45.7 Contributing Scenario (7) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.45.7.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm²
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.45.7.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	4.687 mg/kg$_{bw}$/day	-	0.689259
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.689259

9.45.8 Contributing Scenario (8) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.45.8.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm²
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.45.8.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	3.775 mg/kg$_{bw}$/day	-	0.555087
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.555087

9.45.9 Contributing Scenario (9) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.45.9.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.45.9.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	3.775 mg/kg$_{bw}$/day	-	0.555087
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.555087

9.45.10 Contributing Scenario (10) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.45.10.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>25%
Duration of activity	> 4 hours (default)

Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.45.10.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	4.263 $mg/kg_{bw}/day$	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- $mg/kg_{bw}/day$	-	0.626983

9.45.11 Contributing Scenario (11) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.45.11.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.45.11.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	10.644 mg/m^3	47.6 mg/m^3	0.223621[1]
Combined routes	4.263 $mg/kg_{bw}/day$	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.626983

9.45.12 Contributing Scenario (12) controlling professional worker exposure for PROC 10 (PC 20, PC 37, PC 40)

9.45.12.1 Conditions of use

Name of contributing scenario	PROC 10 Roller application or brushing
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 10 90 %
Respiratory protection	90 %

9.45.12.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	6.291 mg/kg$_{bw}$/day	-	0.925144
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.925144

9.45.13 Contributing Scenario (13) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.45.13.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default) *(justification: Minimum protection limit.)*
Respiratory protection	90 %

9.45.13.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.89 mg/kg$_{bw}$/day	-	0.572033
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.572033

9.45.14 Contributing Scenario (14) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.45.14.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm²
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.45.14.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	6.387 mg/m³	47.6 mg/m³	0.134173[1]
Combined routes	1.761 mg/kg$_{bw}$/day	-	0.258963
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.134173
Combined routes	- mg/kg$_{bw}$/day	-	0.258963

9.45.15 Contributing Scenario (15) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.45.15.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	1,980 cm²
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)

Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.45.15.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.848571 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.12479[1]
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.977 mg/kg$_{bw}$/day	-	0.43786
Total result			
dermal	-	-	0.12479
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.43786

9.45.16 Contributing Scenario (16) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.45.16.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.45.16.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.207983[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	6.483 mg/kg$_{bw}$/day	-	0.953388
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.953388

9.45.17 Contributing Scenario (17) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.45.17.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)

Exposed skin surface	1,980 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (inhalation 80 %; dermal 0 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.45.17.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.207983[1]
inhalation, long-term systemic	7.096 mg/m^3	47.6 mg/m^3	0.149081[1]
Combined routes	2.428 $mg/kg_{bw}/day$	-	0.357064
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.149081
Combined routes	- $mg/kg_{bw}/day$	-	0.357064

9.45.18 Contributing Scenario (18) controlling professional worker exposure for PROC 19 (PC 20, PC 37, PC 40)

9.45.18.1 Conditions of use

Name of contributing scenario	PROC 19 Hand-mixing with intimate contact and only PPE available
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	1,980 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	99 %, burst-time: > 4 hours (default)
Respiratory protection	90 %

9.45.18.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.414 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.207983[1]
inhalation, long-term systemic	24.837 mg/m^3	47.6 mg/m^3	0.521783[1]
Combined routes	4.962 $mg/kg_{bw}/day$	-	0.729766
Total result			
dermal	-	-	0.207983
inhalation	-	-	0.521783

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
Combined routes	- mg/kg$_{bw}$/day	-	0.729766

9.45.19 Contributing Scenario (19) controlling professional worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.45.19.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.45.19.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.864 mg/kg$_{bw}$/day	-	0.568251
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.568251

9.45.20 Contributing Scenario (20) controlling professional worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.45.20.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.45.20.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	14.902 mg/m³	47.6 mg/m³	0.31307[1]
Combined routes	2.952 mg/kg$_{bw}$/day	-	0.434078
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.434078

9.45.21 Contributing Scenario (21) controlling professional worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.45.21.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.45.21.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	35.481 mg/m³	47.6 mg/m³	0.745404[1]
Combined routes	6.44 mg/kg$_{bw}$/day	-	0.947085
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.745404
Combined routes	- mg/kg$_{bw}$/day	-	0.947085

9.45.22 Contributing Scenario (22) controlling professional worker exposure for PROC 2 (PC 20, PC 37, PC 40)

9.45.22.1 Conditions of use

Name of contributing scenario	PROC 2 Use in closed, continuous process with occasional controlled exposure
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No

Respiratory protection	no

9.45.22.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	4.92 mg/kg$_{bw}$/day	-	0.723464
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.723464

9.45.23 Contributing Scenario (23) controlling professional worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.45.23.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.45.23.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	42.578 mg/m³	47.6 mg/m³	0.894485[1]
Combined routes	6.494 mg/kg$_{bw}$/day	-	0.95499
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.894485
Combined routes	- mg/kg$_{bw}$/day	-	0.95499

9.45.24 Contributing Scenario (24) controlling professional worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.45.24.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	240 cm^2

Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.45.24.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.411429 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.060504[1]
inhalation, long-term systemic	29.804 mg/m³	47.6 mg/m³	0.62614[1]
Combined routes	4.669 mg/kg$_{bw}$/day	-	0.686644
Total result			
dermal	-	-	0.060504
inhalation	-	-	0.62614
Combined routes	- mg/kg$_{bw}$/day	-	0.686644

9.45.25 Contributing Scenario (25) controlling professional worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.45.25.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	no

9.45.25.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.10084[1]
inhalation, long-term systemic	21.289 mg/m³	47.6 mg/m³	0.447243[1]
Combined routes	3.727 mg/kg$_{bw}$/day	-	0.548083
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.447243
Combined routes	- mg/kg$_{bw}$/day	-	0.548083

9.45.26 Contributing Scenario (26) controlling professional worker exposure for PROC 3 (PC 20, PC 37, PC 40)

9.45.26.1 Conditions of use

Name of contributing scenario	PROC 3 Use in closed batch process (synthesis or formulation)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	240 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	No
Respiratory protection	90 %

9.45.26.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.685714 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.10084[1]
inhalation, long-term systemic	4.967 mg/m^3	47.6 mg/m^3	0.104357[1]
Combined routes	1.395 $mg/kg_{bw}/day$	-	0.205197
Total result			
dermal	-	-	0.10084
inhalation	-	-	0.104357
Combined routes	- $mg/kg_{bw}/day$	-	0.205197

9.45.27 Contributing Scenario (27) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.45.27.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.45.27.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.121008[1]

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	5.385 mg/kg$_{bw}$/day	-	0.791872
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.791872

9.45.28 Contributing Scenario (28) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.45.28.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm²
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.28.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.45.29 Contributing Scenario (29) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.45.29.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm²
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %

Respiratory protection	90 %

9.45.29.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.45.30 Contributing Scenario (30) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.45.30.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.30.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	5.322 mg/m³	47.6 mg/m³	0.111811[1]
Combined routes	2.132 mg/kg$_{bw}$/day	-	0.313491
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.111811
Combined routes	- mg/kg$_{bw}$/day	-	0.313491

9.45.31 Contributing Scenario (31) controlling professional worker exposure for PROC 4 (PC 20, PC 37, PC 40)

9.45.31.1 Conditions of use

Name of contributing scenario	PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
Concentration in substance	>25%
Duration of activity	> 4 hours (default)

Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.31.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	3.145 $mg/kg_{bw}/day$	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- $mg/kg_{bw}/day$	-	0.462572

9.45.32 Contributing Scenario (32) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.45.32.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.32.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	21.289 mg/m^3	47.6 mg/m^3	0.447243[1]
Combined routes	4.687 $mg/kg_{bw}/day$	-	0.689259
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.447243
Combined routes	- $mg/kg_{bw}/day$	-	0.689259

9.45.33 Contributing Scenario (33) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.45.33.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.33.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	3.775 $mg/kg_{bw}/day$	-	0.555087
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.31307
Combined routes	- $mg/kg_{bw}/day$	-	0.555087

9.45.34 Contributing Scenario (34) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.45.34.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.34.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.242017[1]
inhalation, long-term systemic	14.902 mg/m^3	47.6 mg/m^3	0.31307[1]
Combined routes	3.775 $mg/kg_{bw}/day$	-	0.555087
Total result			

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
dermal	-	-	0.242017
inhalation	-	-	0.31307
Combined routes	- mg/kg$_{bw}$/day	-	0.555087

9.45.35 Contributing Scenario (35) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)
9.45.35.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.35.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	4.263 mg/kg$_{bw}$/day	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.626983

9.45.36 Contributing Scenario (36) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)
9.45.36.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %

Respiratory protection	90 %

9.45.36.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	10.644 mg/m³	47.6 mg/m³	0.223621[1]
Combined routes	4.263 mg/kg$_{bw}$/day	-	0.626983
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.223621
Combined routes	- mg/kg$_{bw}$/day	-	0.626983

9.45.37 Contributing Scenario (37) controlling professional worker exposure for PROC 8A (PC 20, PC 37, PC 40)

9.45.37.1 Conditions of use

Name of contributing scenario	PROC 8a Transfer of chemicals from/to vessels/ large containers at non dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.37.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	24.837 mg/m³	47.6 mg/m³	0.521783[1]
Combined routes	6.291 mg/kg$_{bw}$/day	-	0.925144
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.521783
Combined routes	- mg/kg$_{bw}$/day	-	0.925144

9.45.38 Contributing Scenario (38) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.45.38.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2

Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.45.38.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	6.208 mg/kg$_{bw}$/day	-	0.912881
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.912881

9.45.39 Contributing Scenario (39) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.45.39.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.39.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.646 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.242017[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	2.71 mg/kg$_{bw}$/day	-	0.398552
Total result			
dermal	-	-	0.242017
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.398552

9.45.40 Contributing Scenario (40) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.45.40.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.40.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	17.741 mg/m^3	47.6 mg/m^3	0.372702[1]
Combined routes	5.277 $mg/kg_{bw}/day$	-	0.776064
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.372702
Combined routes	- $mg/kg_{bw}/day$	-	0.776064

9.45.41 Contributing Scenario (41) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.45.41.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.41.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.403361[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	4.517 $mg/kg_{bw}/day$	-	0.664253
Total result			

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
dermal	-	-	0.403361
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.664253

9.45.42 Contributing Scenario (42) controlling professional worker exposure for PROC 8B (PC 20, PC 37, PC 40)

9.45.42.1 Conditions of use

Name of contributing scenario	PROC 8b Transfer of chemicals from/to vessels/ large containers at dedicated facilities
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	960 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.42.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	Exposure concentration (EC)	DNEL	RCR* = EC/DNEL
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	2.743 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.403361[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	4.517 mg/kg$_{bw}$/day	-	0.664253
Total result			
dermal	-	-	0.403361
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.664253

9.45.43 Contributing Scenario (43) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.45.43.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	indoors
Ventilation	enhanced (70%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	no

9.45.43.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	31.933 mg/m³	47.6 mg/m³	0.670864[1]
Combined routes	5.385 mg/kg$_{bw}$/day	-	0.791872
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.670864
Combined routes	- mg/kg$_{bw}$/day	-	0.791872

9.45.44 Contributing Scenario (44) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.45.44.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	1 - 4 hours
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.44.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	0.822857 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.121008[1]
inhalation, long-term systemic	7.451 mg/m³	47.6 mg/m³	0.156535[1]
Combined routes	1.887 mg/kg$_{bw}$/day	-	0.277543
Total result			
dermal	-	-	0.121008
inhalation	-	-	0.156535
Combined routes	- mg/kg$_{bw}$/day	-	0.277543

9.45.45 Contributing Scenario (45) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.45.45.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	indoors

Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.45.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	17.741 mg/m³	47.6 mg/m³	0.372702[1]
Combined routes	3.906 mg/kg$_{bw}$/day	-	0.574383
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.372702
Combined routes	- mg/kg$_{bw}$/day	-	0.574383

9.45.46 Contributing Scenario (46) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.45.46.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm²
Location	indoors
Ventilation	good (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.46.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 mg/kg$_{bw}$/day	6.8 mg/kg$_{bw}$/day	0.201681[1]
inhalation, long-term systemic	12.418 mg/m³	47.6 mg/m³	0.260892[1]
Combined routes	3.145 mg/kg$_{bw}$/day	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- mg/kg$_{bw}$/day	-	0.462572

9.45.47 Contributing Scenario (47) controlling professional worker exposure for PROC 9 (PC 20, PC 37, PC 40)

9.45.47.1 Conditions of use

Name of contributing scenario	PROC 9 Transfer of chemicals into small containers (dedicated filling line)
Concentration in substance	>25%
Duration of activity	> 4 hours (default)
Exposed skin surface	480 cm^2
Location	outdoors (30%)
Domain	professional
Local exhaust ventilation	yes (dermal 100 %)
Protective gloves	Gloves APF 5 80 %
Respiratory protection	90 %

9.45.47.2 Exposure and risks for workers - *for general information see Note 2 on COVERING PAGE***

Route	**Exposure concentration (EC)**	**DNEL**	**RCR* = EC/DNEL**
35% aqueous Ammonia (Ammonia NH4/NH3 aqua)			
dermal, long-term systemic	1.371 $mg/kg_{bw}/day$	6.8 $mg/kg_{bw}/day$	0.201681[1]
inhalation, long-term systemic	12.418 mg/m^3	47.6 mg/m^3	0.260892[1]
Combined routes	3.145 $mg/kg_{bw}/day$	-	0.462572
Total result			
dermal	-	-	0.201681
inhalation	-	-	0.260892
Combined routes	- $mg/kg_{bw}/day$	-	0.462572