BINDING GUIDELINES

GENERAL RISKS

RESULTING FROM THE NATURE AND CHARACTER OF HAZARDOUS CHEMICAL SUBSTANCES, MECHANICAL, THERMAL AND OTHER EFFECTS OF THE COMPANY'S PRODUCTION AND INDIVIDUAL PRODUCTION SECTIONS

Document related to Directive 401 “Basic OSH Regulations” and Directive 402 “Safety Rules for Employees of Other Organisations”

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1 HAZARDS – RISKS

The Chempark Záluží and the Kralupy nad Vltavou Chemical Production Area are large production sites with a high concentration of chemical and energy equipment in which hazardous substances are present. There is also extensive rail and road traffic in and around these areas. Some hazardous substances are present on the company's premises in the facilities of other external entities (AIR PRODUCTS spol. s r.o., SYNTHOS Kralupy a.s., etc.). The source of the hazard is the processing, production, storage, transport and handling of hazardous substances and the nature of the production facility. These substances are present on the company's premises mainly in liquid or gaseous form and the level of hazard they present in the event of non-compliance with regulations and procedures lies in their ability to cause a serious accident. The consequences of such a major accident may include fire, explosion or release of hazardous substances which may result in damage or endangerment to life and health of persons, the environment or damage to property.

1.1 Leakage of flammable gases and vapours

In the event of a leakage of flammable gases and vapours, the following may occur:

- the immediate initiation of a cloud of flammable gases and vapours at the point of leakage (or the leakage and spontaneous ignition of pressurised hydrogen);
  - fire and subsequent burns to persons, damage to property, destruction (collapse) of metal structures by heat, fumigation of the area,
  - an explosion, in which persons and property are additionally endangered by a pressure wave and the scattering of debris,
- the advancement of a cloud of flammable gases or vapours downwind into the area of the company's premises or beyond, with the possible initiation of the path (within the range of the upper and lower explosive limit of their mixture with air), the possible consequences are the same as in the previous point.

1.2 Leakage of flammable liquid

In the event of a leakage of flammable liquid, the following may occur:

- in the event of immediate initiation of a pool fire and subsequent burns to persons, damage to property, destruction (collapse) of metal structures by heat, fumigation of the area,
- the flammable liquid is discharged and during its evaporation a cloud of flammable vapours is formed, advancing in the direction of the wind, in case of subsequent initiation an explosion, fire and subsequent burning of persons or their injuries by pressure wave and debris flight, damage to property by heat, pressure wave or debris flight, fumigation of the area.
- in case of leakage of flammable liquids and substances hazardous to the environment, their penetration into sewers and watercourses may lead to contamination of surface waters, in case of leakage into the rock environment, its contamination and subsequent contamination of groundwater may occur.

1.3 Leakage of toxic gases and vapours

In the event of a leakage of toxic gases and vapours, the following may occur:

- increase of the concentration of a hazardous substance in the air above the permitted limit, spread of a toxic cloud of gases and vapours (without initiation) downwind to the company's premises or its surroundings and subsequent poisoning (or irritation or burning of the mucous membranes of) persons in the area of the harmful concentration (e.g. in the case of a chlorine or ammonia leak),
- in case of initiation of their mixtures with the air, explosion and fire, if flammable gases and vapours are also involved (the consequences of initiation are the same as in Article 1.1, e.g. in case of leakage of carbon monoxide, hydrogen sulphide or ammonia).

1.4 Leakage of toxic liquids

In case of leakage of toxic liquids and substances hazardous to the environment, their penetration into sewers and watercourses may lead to contamination of surface waters, while leakage into the rock environment may lead to its contamination and subsequent contamination of groundwater.

1.5 Leakage of nitrogenous substances

In the event of a leakage of asphyxiating substances, the following may occur:
- in the gaseous state, displacement of the air from the area of leakage and consequently suffocation of the persons present,
- in the liquid state, frostbite in affected persons, intense evaporation, spread of the gaseous cloud and the same consequences as in the gaseous state.

1.6 Leakage of corrosive liquids

In the event of a leakage of corrosive liquids, the following may occur:
- spattering and splashing the affected persons,
- risk to sewers, watercourses, and/or the rock environment and subsequent contamination of surface water or groundwater and/or soil,
- metal (structural) materials distortion,
- contact of nitric acid with organic substances leads to their ignition and subsequent fire, see the consequences in Article 1.1.

1.7 Explosion of combustible dusts from operating equipment (polypropylene powder, polyethylene powder, soot, etc.) mixed with the air

In the event of an explosion of combustible dusts mixed with the air, the following may occur:
- destruction of the device (destruction),
- injury to persons by flying debris or pressure waves,
- subsequent fire, see the consequences in Article 1.1.

1.8 Fall of an object

In the event of objects falling from a height when working on pipeline bridges or elevated workplaces, when handling objects using aerial work platforms and hoists, or due to climatic conditions (corrosion, frost), the following may occur:
- personal injury caused by falling objects,
- damage, destruction of equipment,
- risk to road users.

1.9 Fugitive dust, particles, vapour emissions

In the event of flying dust, particles or vapour emissions, the following may occur:
- contact with the eyes (damage),
- risk to road users.

1.10 Rail and road transport

Due to the density of road and rail traffic (cars, trucks, trolleys, rail vehicles, bicycles), the following may occur:
- a person being hit, bumped, pinched, crushed or bruised by road or rail users.

1.11 Communication

Due to the density of the roads and the possible defects on them, the following may occur:
- slipping, tripping, falling on flat ground – due to unclean, wet (spilled operating fluids, water, dirt) or uneven (uneven or damaged road surface) surface, poor footing,
- slipping, tripping, falling on flat ground – due to weather conditions,
- sinking or slumping – caused by poor securing of holes, depressions, sumps, grates, excavations, etc. on and near the road.

1.12 Noise

Noise caused by the operation of technological equipment can cause hearing damage.

The limit value of permissible noise intensity may also be exceeded during equipment failures and planned activities, e.g. shutdowns of technological equipment, purge, etc.

1.13 Sources of radioactive radiation

Sources of radioactive radiation in level meters, density meters and ash analyzers are present on the company's premises. The radioactive elements are Cs 137, Am 241 and Co 60. Damage to this equipment could result in a risk of exposure.

2 MEASURES

2.1 Knowledge of and compliance with generally applicable legislation and regulatory requirements.

2.2 Knowledge of and compliance with the binding internal regulations of ORLEN Unipetrol RPA, s.r.o. (especially Directive 402), published on the website (e-mail address: www.unipetrolrpa.cz) “Services and Premises” block – CHEMPARK Záluží – binding standards and information, and regularly acquaint oneself with their updates.

2.3 Familiarise yourself with the general risks to the life and health of employees listed in Chapter 1. Knowledge of and adherence to the specified precautions.

2.4 Familiarise yourself with the more detailed specifications of the risks to the life and health of workers listed for each production site. Knowledge of and adherence to specified measures.

2.5 Completion of prescribed education and training as per the above requirements.

2.6 Standard of personal protective equipment

2.6.1 In the area of the production facility in the entire area under the management of ORLEN Unipetrol RPA, s.r.o., the risks of possible danger to life and health of persons defined in Chapter 1 cannot be completely excluded. For this reason, all persons who are present in the area are obliged to use the protective equipment specified in points 1–5 of this article.

The provision does not apply to office spaces, command rooms, day rooms and spaces in buildings in which no production equipment is installed. Furthermore, the provision does not apply to persons permanently residing in office buildings located on the premises, to persons entering such buildings on a one-time basis, and to the travel of persons to and from work (when travelling on a designated roadway).

1) Protective helmet with chin guard (more than 2 point attachment)

It is not necessary to use a protective helmet in the case of welding where the welder is equipped with a welding hood or goggles. This exemption is only valid while the welding work is actually being carried out.

It is no longer necessary to use a safety helmet in cases of poor access to the equipment or movement in the equipment where the working position prevents the safe use of the safety helmet.

In the event of entering areas with a risk of explosion, a protective helmet designed for such areas must be worn.

In the company's industrial premises, protective work helmets are used, differentiated by colour according to the individual groups of company employees and employees of other organisations.

Employees of ORLEN Unipetrol RPA s.r.o.:

White: senior staff at all levels of management, investment staff

Red: security staff

Grey: visits, excursions, practice

Green: other

Employees of other implementing organisations (contractors):

White: persons managing activities on the construction site (construction manager, inspection, design)

Orange: persons carrying out the management of activities in connection with the authorisation of works (receiving persons, persons taking over)

Red: persons carrying out activities in the field of occupational safety supervision and fire protection

Grey: visits, excursions, practice

Yellow: other workers (does not apply to transport drivers)

Note:

A transition period is in place for the colour differentiation of helmets to deplete existing stocks of purchased PPE. New purchases must be made in accordance with this requirement.

2) Non-flammable / antistatic workwear

Non-flammable/antistatic workwear (the material must be non-flammable in terms of its physical and chemical properties – modifications by impregnation, etc. are not allowed). In the case of rainwear, products with a non-flammable / antistatic treatment must be used.

The workware of drivers (shirt and trousers or overalls) involved in loading/unloading of materials (goods), except for activities according to the provisions of ADR, does not have to be anti-static / non-flammable. During these activities, the driver must wear a reflective safety vest and follow the safety instructions posted at the loading/unloading site.

3) Antistatic work boots

Protective anti-static safety shoes. In the premises of the Refinery unit, ankle boots, with reinforced toe and puncture-resistant.

Antistatic footwear cannot be used when working on electrical equipment.

Antistatic footwear need not be used for inspection or attendance activities (external inspection bodies, visits, excursions, etc.). In these cases, it is necessary to wear sturdy and closed shoes and move only in the areas defined by the head of the workplace or a designated escort.

The footwear of drivers involved in the loading/unloading of materials (goods), apart from activities in accordance with the provisions of ADR, need not be anti-static. In such cases, sturdy and closed footwear must be used. Drivers must follow the operator's instructions and safety instructions posted at the loading/unloading site.

4) Goggles against mechanical hazards with side eye protection

Persons using dioptric glasses must use protective goggles against mechanical hazards made for this purpose (goggles) or goggles fitted with hardened dioptric glass.

Goggles need not be used where employees are equipped with other eye protection incompatible with goggles against mechanical hazards (shield, welding hood, goggles for other protection, mask).

Persons performing the activities of a crane operator, signalman, binder or scaffolder may not use goggles in adverse weather conditions (rain, drizzle, snow).

It is forbidden to use dark visors in areas and objects where visibility may be impaired (closed containers, cellars, dark areas, etc.).

5) Gloves against mechanical hazards

It is not necessary to use gloves when it is necessary to maintain sensitivity in the hands (good gripping properties) or when other hand protection is used.

6) Escape mask protecting against the effects of hydrogen sulphide, ammonia – in designated zones.

2.6.2 Exceptions to the above standard may be determined by the appropriate unit (production team) leader in conjunction with the company safety engineer. Incompatibility of individual protective equipment specified by the standard and used by the recipient for its own operations shall be resolved through the permitting process in accordance with Directive 465 “Work Permit” and Directive 435 “Permit to Work” for Refinery units.

2.6.3 With regard to the risks mentioned in Chapter 1, additional personal protective equipment is specified in the follow-up documentation dealing with the further specification of the risks of each production site. This documentation identifies the specific locations requiring additional prescribed protection.

2.6.4 With regard to the noise risk, which is specified in this documentation for specific workplaces, but due to possible malfunctions and unplanned shutdowns, short-term exceedances of the permissible noise intensity values may occur outside these premises, it is necessary to have adequate hearing protection, e.g. earplugs, on standby.

3 THE MOST IMPORTANT HAZARDOUS SUBSTANCES ON THE COMPANY'S PREMISES

Type of hazardous substance	Physical form	Name of substance
Oxidising	Liquid	liquefied oxygen
Liquefied extremely flammable gases	Liquid	hydrocarbons – methane, ethane, ethylene, propane, propylene, butenes (C_4 fraction), propane-butane mixture (LPG)
Extremely flammable	Gas	hydrogen, C1-C4 hydrocarbons, off-gases, synthesis gas, natural (fuel) gas
Extremely flammable toxic	Gas	carbon monoxide, hydrogen sulphide
Highly flammable	Liquid	benzene, ethylbenzene, gasolines (all types), C5 fraction, methanol, isopentane, hexane, isohexane, petroleum oil, toluene, BTX fraction
Flammable	Liquid	C9 fraction, C10 fraction, diesel fuel, kerosene, crude oil, separated oils,
Toxic	Liquid and gas	ammonia, benzene, chlorine, methanol
Asphyxiating (air displacing)	Liquid and gas	argon, nitrogen, carbon dioxide
Corrosive	Liquid	concentrated acids and alkalis and their aqueous solutions
Hazardous to the environment	Liquid	ammonia water, pyrolysis oils (gas, fuel), naphthalene concentrate
Explosive	Solid	coal dust, dust fractions of polyolefins
Radioactive		Cs 137, Co 60, Am 241 (caesium, cobalt, americium)

4 SYSTEMS AND MEANS OF COMMUNICATION, WARNING AND NOTIFICATION

The systems and means of communication, warning and notification are defined by Directives 405 “Basic regulation for employees in the field of emergency and crisis preparedness, Chempark Záluží Litvínov” and 405/1 “Basic regulation for employees in the field of emergency and crisis preparedness, Area of Chemical Production Kralupy”.