

## MATERIAL SAFETY DATA SHEET

Date of issue: 30.07.2004  
Reviewed on: 01.12.2009 5th Edition

# PROPYLENE FOR POLYMERISATION

### 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE (PREPARATION) AND OF THE COMPANY/UNDERTAKING

#### 1.1 Identification of the substance / mixture (preparation)

Commercial name: Propylene for polymerisation  
Chemical name: Propene  
Registration number: not applicable.

#### 1.2 Use of the substance / mixture (preparation)

Production of polypropylene, propylene copolymers, chemical synthesis.

#### 1.3 Company / undertaking identification

■ UNIPETROL RPA, s.r.o., Záluží 1, 436 70 Litvínov, Czech Republic

☎: +420 476 161 111  
fax: +420 476 619 553  
[unipetrolrpa@unipetrol.cz](mailto:unipetrolrpa@unipetrol.cz)  
[www.unipetrolrpa.cz](http://www.unipetrolrpa.cz)

- Trade Division Director: ☎: +420 476 164 281 fax: +420 476 163 691  
[jaroslava.svobodova@unipetrol.cz](mailto:jaroslava.svobodova@unipetrol.cz)
- Sales administrator: ☎: +420 476 164 169 fax: +420 476 163 691
- Person responsible for the MSDS [ludmila.krejcikova@unipetrol.cz](mailto:ludmila.krejcikova@unipetrol.cz)

#### 1.4 Emergency telephone numbers in case of accident

- UNIPETROL RPA, s.r.o. ☎: +420 476 163 111 (non stop)  
☎: +420 476 162 111 (non stop)
- CENTRE OF THE CZECH MINISTRY OF HEALTH  
Toxicological Information Centre Prague (TIS), CZ ☎: +420 224 919 293 (non stop)  
Na bojišti 1, 128 08 Praha 2, Czech Republic ☎: +420 224 915 402 (non stop)  
e-mail: [tis@mbox.cesnet.cz](mailto:tis@mbox.cesnet.cz)  
fax: +420 224 914 570

### 2. HAZARD IDENTIFICATION

#### 2.1 Classification of the substance / mixture (preparation)

Product is classified as dangerous according to the Czech Act No. 356/2003 Sb. and Regulation (EC) No 1272/2008 (Directive 67/548/EEC or Directive 1999/45/EC):

EXTREMELY FLAMMABLE

F+; R 12

#### 2.2 Information pertaining to particular dangers for human

Substance is irritating to eyes and respiratory system, has strong narcotic effect. Contact with liquid gas causes frostbites and may cause serious damage to eyes. Liberated gas displaces oxygen and causes danger of suffocation. Chronic effects have influence on central nervous system.

#### 2.3 Information pertaining to particular dangers for the environment

Substance is not harmful for aquatic environment. It is biologically degradable, bioaccumulation or bio concentration in organisms or food-chains is not expected.

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### 2.4 Other adverse effects

Extremely flammable and easily ignitable liquid gas. Evaporates readily and forms cold fogs heavier than air and explosive mixtures with air. Ignition possible when exposed to hot surfaces, sparks, naked flames and static discharges too. Vapours travel rapidly to far distances and may cause subsequent ignition. Risk of explosion and suffocation in spaces under ground level and enclosed areas. Substance is practically insoluble in water, floats and forms explosive mixtures above the water level. Risk of potential explosion if emptied into drains or released into wastewater.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical substance (CAS No. 115-07-1, ES No 204-062-1)

### 4. FIRST AID MEASURES

#### 4.1 General advice

**IMMEDIATE MEDICAL ATTENTION IS REQUIRED AFTER INHALATION OR AFTER EYE CONTACT WITH LIQUEFIED GAS.**

In case of health troubles or doubts, seek medical advice immediately and show this Material Safety Data Sheet. Ensure activity of vitally important functions until the arrival of the doctor (artificial respiration, inhalation of oxygen, heart massage). If patient is unconscious, or in case of danger of blackout (apsychia), transport patient in a stabilised position. In case of first degree burns (painful redness), and second degree burns (painful blisters), cool the affected area with cold running water for a long time. In case of third degree burns (redness, cracking pale skin, usually without pain), do not cool affected skin, dress the area with sterile dry gauze only.

#### 4.2 Inhalation

Remove patient to fresh air, keep him warm and in order to rest quietly. Avoid walking. Seek medical advice. SYMPTOMS AND EFFECTS: dizziness, drowsiness, fatigue, narcosis, excitement, panting, nausea, unconsciousness.

#### 4.3 Skin contact

If frostbites occur, do not rub affected areas, just dress with sterile dry gauze (or clean tissue). Seek medical advice.

SYMPTOMS AND EFFECTS: possible frostbites after contact with liquid.

#### 4.4 Eye contact

Immediately flush eyes with clean lukewarm water and continue flushing for at least 15 minutes – keep the eyelids widely apart and flush thoroughly with mild water stream from the inner to the outer canthus. Seek medical advice. Contact with liquefied gas is very dangerous – immediate medical treatment necessary.

SYMPTOMS AND EFFECTS: possible damage to eyes after contact with liquid.

#### 4.5 Swallowing

Not applicable.

### 5. FIRE-FIGHTING MEASURES

#### 5.1 Suitable extinguishing media

Water mist, water spray, small fire – powder, CO<sub>2</sub>.

Cool containers with water spray.

#### 5.2 Extinguishing media to be avoided

Water jet.

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### 5.3 Caution about specific danger in case of fire and fire-fighting procedures

Do not fight fire until the source of the leakage is removed. Danger of violent reaction or explosion. Vapours may travel considerable distances and cause subsequent ignition. Evaporation of the liquid creates cold fogs, which are heavier than air, may cumulate along the ground and in enclosed spaces – danger of explosion and suffocation. Do not empty into drains. When burning, it emits toxic and irritant fumes. Containers with the substance exposed to excessive heat may explode.

### 5.4 Special protective equipment for fire-fighters

Wear full protective clothing and a self-contained breathing apparatus.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Person-related safety precautions

Isolate hazard area. Evacuate all unauthorised personnel not participating in rescue operations from the area. Avoid entry into danger area. Remove all possible sources of ignition. Stop traffic and switch off the motors of the engines. Do not smoke and do not handle with naked flame. Use explosion-proof lamps and non-sparking tools. Avoid contact with the substance. Apply full protective personal equipment to paralyse the accident. Evacuate personnel from danger area. In places under the ground level and in enclosed spaces (including drains) risk of explosion and suffocation.

### 6.2 Precautions for protection of the environment

Stop further substance leaks. Dike area. Do not allow substance to enter water and sewage systems.

### 6.3 Recommended methods for cleaning and disposal

The outgoing liquefied gas evaporates quickly, without effective possibility to influence the process. Use water spray to reduce the vapour content in the air.

## 7. HANDLING AND STORAGE

### 7.1 Information for safe handling

When handling with substance as well as with empty containers (which may contain product residues) observe all fire-fighting measures (no smoking, do not handle with naked flame and remove all possible sources of ignition). Take precautionary measures against static discharges. Wear recommended personal protective equipment and observe instructions to prevent possible contact of substance with skin and eyes and inhalation. If entering enclosed or non-ventilated area, always use equipment to protect the respiratory system. Avoid leak to environment.

### 7.2 Information for storage

Storerooms should meet the requirements for the fire safety of constructions and electrical facilities and should be in conformity with valid regulations. Store in cool, well-ventilated place with effective exhaust, away from heat and all sources of ignition. Store containers tightly closed. Store in places protected from direct sunshine. Do not store together with oxidising agents. Protect from static electricity. Avoid leak to environment.

### 7.3 Information for specific use

Not applicable.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Exposure limit values

Czech Republic (Order-in-Council No 361/2007 Sb.): no limits set.

European Union (Directive 2006/15/EC): no limits set

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### 8.2 Occupational exposure controls

Collective protection measures

General and local ventilation, effective exhaust.

Individual protection measures

Personal protective equipment (PPE) for the protection of eyes, hands and skin corresponding with the performed labour has to be kept at disposition for the employees. In cases, where the workplace exposure control limits cannot be observed with the help of technical equipment or where it is not possible to ensure that the respiratory system exposure does not represent a health hazard for the personnel, adequate respiratory protection have to be kept at disposition. In the case of continuous use of this equipment during constant work, safety breaks have to be scheduled, if the PPE-character requires this. All PPE have to be kept in disposable state and the damaged or contaminated equipment has to be replaced immediately.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT (PPE):

- *respiratory protection:* in event of inhalation risk wear self-contained breathing apparatus
- *eye protection:* safety goggles, full face-shield
- *hand protection:* protective gloves

	<i>glove material</i>	<i>layer thickness</i>	<i>breakthrough time</i>
routine work (possibility of staining)	nitrile	0,4 mm	60 Min.
outflow / accident disposal	viton	0,7 mm	480 Min.

*The protective gloves to be used must comply with the specifications of EC directive 89/686/EEC and the resultant standard EN374, for example 730 Camatril® Velours (splash contact) and 890 Vitoject® (outflow). The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. The recommended time applies to the product stated in the safety data sheet as well as to the purpose specified here. Under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL CZ s.r.o., Suderova 2013, 709 00 Ostrava 9, [www.klc.de](http://www.klc.de).)*

- *skin protection:* protective coveralls protecting against possible frostbites (antistatic design recommended), sealed leather footwear
- *General safety and hygienic measures:* Observe personal hygienic regulations. Do not eat, drink or smoke during work! Wash thoroughly hands and uncovered body parts with soap and water after handling and before eating or drinking, and treat skin with a mild skin restoring cream.

### 8.3 Environmental exposure controls

Proceed in accordance with valid air and water legislative regulations.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 General information

- *Physical state at 20°C:* gas
- *Colour:* colourless
- *Odour:* practically odourless

### 9.2 Important health, safety and environmental information

- *pH-value:* not applicable
- *Boiling point [°C]:* -48
- *Flash point [°C]:* -107
- *Inflammability* extremely flammable
- *Explosion limits - lower [Vol.%]:* 2
- *- upper [Vol.%]:* 11,7
- *Oxidising properties:* none

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• Vapour pressure at 20°C [kPa]:	1040
• Density at 0°C [kg.m <sup>-3</sup> ]:	1,915
• Solubility	not applicable
• Solubility in water at 20°C [g.l <sup>-1</sup> ]:	0,85
• Partition coefficient n-octanol/ water [log Kow]:	1,77
• Vapour viscosity at 20°C [Pa.s]:	84.10 <sup>-7</sup>
• Relative vapour density (air=1):	1,49
• Evaporation rate	not applicable

### 9.3 Other information

• Melting point / solidification point [°C]:	-185
• Ignition temperature [°C]:	455
• Maximum experimental safe gap [mm]:	0,91
• Heat value [MJ.kg <sup>-1</sup> ]:	46,055
• Explosion class:	II A
• Critical temperature [°C]:	92,3
• Critical pressure [kPa]:	4700
• Flame temperature [°C]:	2289

## 10. STABILITY AND REACTIVITY

### 10.1 Conditions to avoid

Concentrations within the explosion limits, sources of ignition, high temperature, sun radiation.

### 10.2 Material to avoid

Explosive polymerisation in contact with LiNO<sub>3</sub>+SO<sub>2</sub>. Hazardous reactions with oxidizing agents, nitrogen oxides, halogens, hydrogen halides, acetylene.

### 10.3 Hazardous decomposition products

Thermal decomposition: CO, CO<sub>2</sub>.

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Acute effects

Substance is irritating to eyes and respiratory system, has strong narcotic effect. Contact with liquid gas causes frostbites and may cause serious damage to eyes. Liberated gas displaces oxygen and causes danger of suffocation.

Inhalation:	dizziness, drowsiness, fatigue, narcosis, excitement, panting, nausea, unconsciousness.
Eyes:	possible damage to eyes after contact with liquid.
Skin:	possible frostbites after contact with liquid.
Swallowing:	not applicable.

Acute toxicity

LC inhalation - rat > 86 000 mg.m<sup>-3</sup>/4hod.

### 11.2 Repeated dose toxicity

Chronic effects have influence on central nervous system.

### 11.3 Sensitisation

It has no sensitisation effects.

### 11.4 CMR effects (carcinogenity, mutagenicity, toxicity for reproduction)

It has no CMR effects.

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### 11.5 Toxicokinetics, metabolism, distribution

Not applicable.

## 12. ECOLOGICAL INFORMATION

### 12.1 Ecotoxicity

Not applicable.

### 12.2 Mobility

Not applicable.

### 12.3 Persistence and degradability

Substance is biodegradable.

### 12.4 Bioaccumulative potential

Bioaccumulation or bio concentration in organisms or food-chains is not expected.

### 12.5 Results of PBT assessment

Not applicable.

### 12.6 Other adverse environmental effects

According to the Water-Act No 254/2001 Sb. the product is not considered to be a defective substance or a hazardous substance according to Annex No 1 to the Water-Act.

## 13. DISPOSAL CONSIDERATIONS

### 13.1 Recommended disposal methods for the substance / mixture (preparation)

Product reuse or disposal in accordance with valid waste legislative regulations.

Recommended method: Energetic utilization (combustion)

### 13.2 Recommended disposal methods for contaminated packaging

Product is transported in tank-vehicles.

### 13.3 Waste management measures that control exposure of humans and environment

Proceed in accordance with valid health, air and water legislative regulations.

### 13.4 Waste regulation

Czech Republic

Act No 185/2001 Sb. on wastes and on the amendment of some additional acts, as amended.

Regulation No 381/2001 Sb. establishing the Waste Catalogue, as amended.

European Union

Directive 2006/12/ES on waste

## 14. TRANSPORT INFORMATION

### 14.1 Transport classification

- Land transport (ADR / RID)
- Name: PROPYLENE
- UN-Number: 1077
- Class: 2
- Classification code: 2F
- Packing group: not applicable
- Hazard identification No: 23
- Symbol/label: 2.1

### 14.2 Special transport precautionary measures

Not applicable.

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### 15. REGULATORY INFORMATION

#### 15.1 Chemical Safety Assessment

Not applicable.

#### 15.2 Labelling of the substance / mixture (preparation)

<i>name</i>	<p align="center"><b>PROPYLENE FOR POLYMERISATION</b> PROPENE ES: 204-062-1 “EC label“</p>	
<i>graphic symbol of danger</i>	<p align="center">  Extremely flammable         </p>	
<i>R-phrases</i>	12	Extremely flammable.
<i>S-phrases</i>	9-16-33	Keep container in a well-ventilated place. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges.
<i>Company:</i>	UNIPETROL RPA, s.r.o. Záluží 1, 436 70 Litvínov Czech Republic ☎: +420 476 161 111, +420 476 162 111, +420 476 163 111	

#### 15.3 Regulatory Data relating to the substance / mixture (preparation)

European Union

Regulation (EC) No 1907/2006 REACH

Regulation (EC) No 1272/2008

Czech Republic:

Act No 356/2003 Sb., on chemical substances and chemical preparations and on the amendment of some additional acts, in the wording of posterior regulations

Act No. 258/2000 Sb. on the Protection of Public Health and on the amendments of some related acts, as amended.

Order-in-Council No. 361/2007 Sb., regulating Safety Occupational Health Conditions in the workplace, as amended.

### 16. OTHER INFORMATION

Full text of relevant R-phrases referred to under headings 2 and/or 3

R 12                      Extremely flammable.

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Fulfilling the obligations related to Regulation (EC) No. 1907/2006 - REACH

The stated chemical substance was pre-registered in accordance with the REACH regulation.

Training instructions

Personnel handling the product has to be instructed about the handling risks and the health protection and environmental requirements (see the relevant Employment Law provisions)

Access to information

Employer must in accordance with Articles 35 of the Regulation (EC) No 1907/2006 enable access to the information from MSDS workers and their representatives who this product use or may be exposed to in the course of their work.

Sources of data used to compile the Material Safety Data Sheet

Record on the classification of hazardous properties of the product

Annex No. 1 to the Regulation No 232/2004 Sb., as amended.

Annex No VI to the Regulation (EC) No 1272/2008 (Table No 3.2)

Annex No 1F to the Directive No 2008/58/EC

Annex No 1A to the Directive No 2009/2/ES

First aid principles in case of exposition to chemical substances (doc. MUDr. Daniela Pelclová et al.)

Revised information

01.12.2006: Revised data under headings 1, 2, 8, 12.5, 13 and 16

01.03.2007: Revised data under headings 1 and 16

01.06.2007: General update according to Regulation (EC) No 1907/2006 REACH

01.12.2009: Revised data under headings 1, 2.1, 8.1, 15, 16 and "Statement"

**Statement:** This Material Safety Data Sheet has been elaborated in accordance with the Regulation (EC) No 1907/2006. This MSDS contains information necessary for the protection of health and environment. The information does not substitute the quality specification of products and should not be construed as any guarantee of suitability for particular applications. The data contained are based on the present state of knowledge and current national legislation. The user is responsible for ensuring that the requirements of relevant regional legislation are complied with.

According to an authorisation form on behalf of UNIPETROL RPA s.r.o., elaborated by:  
Environmental and Standardisation Department HSE&Q, UNIPETROL SERVICES, s.r.o.