

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Propylene

Version 12

Revision Date 15.11.2010

Print Date 23.02.2011

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : Polymer Grade Propylene, Chemical Grade Propylene

Registration number : 01-2119447103-50-XXXX, 01-2119447103-50-0003

Substance name : propylene

Substance No. : 204-062-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Raw material in chemical industry

1.3 Details of the supplier of the safety data sheet

Manufacturer : Borealis AB
S-444 86 Stenungsund, Sweden
Telephone: +46 303 86000

Borealis Polymers Oy
P.O.Box 330, FI-06101 Porvoo, Finland
Telephone: +358 9 394900

Borealis Kallo N.V.
Haven 1568, Sint-Jansweg 2, B-9130 Kallo-Kieldrecht,
Belgium
Telephone: +32 3 570 5211

Supplier : Borealis AG
Wagramerstrasse 17-19, 1220 Vienna, Austria
Telephone: +43 1 22400 0

E-mail address : sds@borealisgroup.com

1.4 Emergency telephone number

+32 3 570 5354 Shift supervisor, Dehydrogenation plant (24h)
+32 70 245 245 Centre Antipoisons Belge (24h)

2. Hazards identification

2.1 Classification of the substance or mixture

Borealis AG | Wagramerstrasse 17-19 | 1220 Vienna | Austria
Telephone +43 1 224 00 0 | Fax +43 1 22 400 333
FN 269858a | CCC Commercial Court of Vienna | Website www.borealisgroup.com



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Classification (REGULATION (EC) No 1272/2008)



Flammable gases, Category 1	H220: Extremely flammable gas.
Gases under pressure, Refrigerated liquefied gas	H281: Contains refrigerated gas; may cause cryogenic burns or injury.

Classification (67/548/EEC, 1999/45/EC)

Extremely flammable	R12: Extremely flammable.
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2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms	:	 
Signal word	:	Danger
Hazard statements	:	H220 Extremely flammable gas. H281 Contains refrigerated gas; may cause cryogenic burns or injury.
Precautionary statements	:	Prevention: P210 Keep away from open flames/hot surfaces. - No smoking. P282 Wear cold insulating gloves/ face shield/ eye protection. Response: P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 Eliminate all ignition sources if safe to do so. P336 Thaw frosted parts with lukewarm water. Do not rub affected area. Storage: P403 Store in a well-ventilated place.

2.3 Other hazards

The product evaporates readily.
Rapid evaporation of the liquid may cause frostbite.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Inhalation of high vapour concentrations can cause central nervous system depression and narcosis.
Risk of explosion if heated under confinement.
Vapours may form explosive mixtures with air.

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High risk of fire in case of leakage.

3. Composition/information on ingredients

3.1 Substances

Chemical Name	CAS-No. EINECS-No. / ELINCS No.	Concentration [%]
propene	115-07-1 204-062-1	94 - 100
propane	74-98-6 200-827-9	0 - 6

4. First aid measures

4.1 Description of first aid measures

- General advice : Move out of dangerous area.
In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
- If inhaled : Remove from exposure.
Keep warm and at rest and provide fresh air.
In case of breathing difficulties, apply mouth to mouth respiration.
Seek medical advice immediately.
- In case of skin contact : Wash frost-bitten areas with plenty of water. Do not remove clothing.
Seek medical advice.
- In case of eye contact : In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- If swallowed : Not probable:
The product evaporates readily.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : Inhalation may provoke the following symptoms:
Drowsiness
Suffocation
Inhalation may cause central nervous system effects.
Skin contact may provoke the following symptoms:
Frostbite

4.3 Indication of immediate medical attention and special treatment needed

- Treatment : There is no specific antidote available.
Treat frost-bitten areas as needed.

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5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media : Dry powder, carbon dioxide, foam and water mist.

Unsuitable extinguishing media : Do NOT use water jet.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting : Incomplete combustion may produce:
Carbon monoxide

5.3 Advice for firefighters

Special protective equipment for fire-fighters : Wear self-contained breathing apparatus and protective suit.

Further information : Attempt to stop leakage without personal risk.
If conditions permit, let fire burn itself out.
Cool tanks with water spray.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Use personal protective equipment.
Keep people away from and upwind of spill/leak.
Eliminate all ignition sources if safe to do so.
Attempt to stop leakage without personal risk.

6.2 Environmental precautions

Environmental precautions : Prevent further leakage or spillage if safe to do so.
Prevent product from entering environment and drains.
Observe the risk of explosion.
If major spillage occurs, contact the proper local authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : Allow to evaporate.
Ensure adequate ventilation, especially in confined areas.
Do NOT use water jet.

6.4 Reference to other sections

See chapter 8.

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7. Handling and storage

7.1 Precautions for safe handling

- Advice on safe handling : Refill and handle product only in closed system.
Prevent leaks by checking valves, pipelines and joints regularly.
- Advice on protection against fire and explosion : Keep away from sources of ignition - No smoking.
Take precautionary measures against static discharges.
To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded.
Ensure adequate ventilation.
Risk of explosion if heated under confinement.
Vapours may form explosive mixtures with air.
High risk of fire in case of leakage.

7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : Keep container in a well-ventilated place.
Keep product and empty container away from heat and sources of ignition.
Incompatible with strong acids and oxidizing agents.

7.3 Specific end uses

- || Specific use(s) : Not applicable.

8. Exposure controls/personal protection

8.1 Control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
propane	74-98-6	TGG 8 hr	1.000 ppm	2007-06-07	BE OEL
		TGG 8 hr	1.000 ppm	2009-06-11	BE OEL

- || DNEL : Not possible from current data.

- || PNEC : Not applicable.

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8.2 Exposure controls

Engineering measures

- Application in a closed system
- Provide adequate ventilation.
- Use personal protective equipment.

Personal protective equipment

- Respiratory protection : In case of insufficient ventilation: Self-contained breathing apparatus.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
- Hand protection : Cold-insulating gloves (e.g. nitrile rubber).
- Eye protection : Safety goggles or face-shield.
- Skin and body protection : Wear suitable protective clothing and rubber boots.

Environmental exposure controls

- General advice : Prevent further leakage or spillage if safe to do so.
Prevent product from entering environment and drains.
Observe the risk of explosion.
If major spillage occurs, contact the proper local authorities.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Appearance : gaseous
Refrigerated liquefied gas
- Colour : colourless
- Odour : mild
aromatic
- Flash point : Note: not applicable
- Lower explosion limit : 2 %(V)
- Upper explosion limit : 11 %(V)
- Flammability (solid, gas) : Extremely flammable.
- Autoignition temperature : 455 °C

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Decomposition temperature : Note: Heating or fire can release toxic and irritating gases.

pH : Note: no data available

Melting point : -185 °C

Boiling point : -48 °C

Vapour pressure : 11.580 hPa
at 25 °C

Water solubility : 0,2 g/l
at 25 °C

Partition coefficient: n-
octanol/water : log Pow: 1,77

Solubility in other solvents : Note: no data available

Viscosity, dynamic : Note: not applicable

Viscosity, kinematic : Note: not applicable

Relative vapour density : 1,4

Evaporation rate : Note: no data available

9.2 Other information

Not relevant

10. Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : Keep away from heat and sources of ignition.
Observe the risk of explosion.

10.5 Incompatible materials

Materials to avoid : Strong bases

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Strong oxidizing agents

10.6 Hazardous decomposition products

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|----------------------------------|--|
| Hazardous decomposition products | : In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide |
| Thermal decomposition | : Note: Heating or fire can release toxic and irritating gases. |

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

- | | |
|---------------------------|--|
| Acute oral toxicity | : Remarks: not applicable (gaseous) |
| Acute inhalation toxicity | : Remarks: Based on available data, the classification criteria are not met. |
| Acute dermal toxicity | : Remarks: not applicable (gaseous) |

Skin corrosion/irritation

- | | |
|-----------------|--|
| Skin irritation | : Remarks: Contact with liquid or refrigerated gas can cause cold burns and frostbite. |
|-----------------|--|

Serious eye damage/eye irritation

- | | |
|----------------|--------------------------------------|
| Eye irritation | : Remarks: Non persistent irritation |
|----------------|--------------------------------------|

Respiratory or skin sensitization

- | | |
|---------------|---|
| Sensitisation | : Remarks: This information is not available. |
|---------------|---|

Germ cell mutagenicity

- | | |
|-----------------------|--|
| Genotoxicity in vitro | : Remarks: Based on available data, the classification criteria are not met. |
| Genotoxicity in vivo | : Remarks: In vivo tests did not show mutagenic effects |

Carcinogenicity

- | | |
|-----------------|--|
| Carcinogenicity | : Remarks: IARC evaluation:, Group 3: Not classifiable as to its carcinogenicity to humans |
|-----------------|--|

Reproductive toxicity

- | | |
|-----------------------|-------------------|
| Reproductive toxicity | : Dose: 10000 ppm |
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Remarks: Fertility and developmental toxicity tests did not reveal any effect on reproduction.

Target Organ Systemic Toxicant - Single exposure

: Exposure routes: Inhalation
Remarks: The substance or mixture is not classified as specific target organ toxicant, single exposure., May cause effects on the central nervous system, resulting in lowering of consciousness.

Target Organ Systemic Toxicant - Repeated exposure

: Exposure routes: Inhalation
Remarks: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

: Exposure routes: Ingestion
Remarks: not applicable, (gaseous)

: Exposure routes: Skin contact
Remarks: not applicable, (gaseous)

Aspiration hazard

Aspiration toxicity : no data available

Further information : Absorbs into the body by inhalation.

12. Ecological information

12.1 Toxicity

Toxicity to fish : LC50: 51,7 mg/l
Short term Method: QSAR

Toxicity to daphnia and other aquatic invertebrates. : 28,2 mg/l
Exposure time: 48 h
Species: Daphnia
Short term

Toxicity to algae : EbC50: 12,1 mg/l
Exposure time: 96 h
Growth inhibition Method: QSAR

Toxicity to bacteria : Remarks:

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		no data available
	Toxicity to fish (Chronic toxicity)	: Remarks: no data available
	Toxicity to daphnia and other aquatic invertebrates. (Chronic toxicity)	: Remarks: no data available

12.2 Persistence and degradability

	Biodegradability	: Remarks: Not readily biodegradable.
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12.3 Bioaccumulative potential

	Bioaccumulation	: Remarks: Bioaccumulation not expected: Partition coefficient (n-octanol/water) log Pow < 3.
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12.4 Mobility in soil

	Mobility	: Medium: Soil Remarks: Not expected to adsorb on soil. The product evaporates readily to air.
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	Additional advice Environmental fate and pathways	: Prone to photochemical degradation, reacting with OH radicals and ozone.
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12.5 Results of PBT and vPvB assessment

||| This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

12.6 Other adverse effects

	Additional ecological information	: This product has no known eco-toxicological effects.
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13. Disposal considerations

13.1 Waste treatment methods

Product	: Where possible recycling is preferred to disposal or incineration.
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14. Transport information

ADR

UN number : 1077
UN proper shipping name : PROPYLENE
Transport hazard class(es) : 2
Hazard identification No : 23
Labels : 2.1
Environmentally hazardous : no

IMDG

UN number : 1077
Description of the goods : PROPYLENE
Class : 2.1
EmS Number 1 : F-D
EmS Number 2 : S-U

Marine pollutant : no

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

|| Other regulations : no data available

15.2 Chemical Safety Assessment

|| A Chemical Safety Assessment has been carried out for this substance.

16. Other information

Full text of R-phrases referred to under sections 2 and 3

R12 Extremely flammable.

Full text of H-Statements referred to under sections 2 and 3.

H220 Extremely flammable gas.
H281 Contains refrigerated gas; may cause cryogenic burns or injury.

Further information

Other information : Changes since the last version are highlighted in the margin.
This version replaces all previous versions.

Issuer : Borealis, Group Product Stewardship / Mikaela Eriksson &

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Andreas Ekholm

Sources of key data used to compile the Safety Data Sheet : IUCSID Dataset 2000 Propene (<http://ecb.jrc.ec.europa.eu/IUCSID-DataSheets/115071.pdf>)
Environment Guide 71; Environmental properties of chemicals, Finnish Environment Institute, Helsinki 2000
International Chemical Safety Card, Propylene, Nov. 1998, updated 2007 (<http://www.inchem.org/documents/icsc/icsc/eics0559.htm>)
IARC (International Agency for Research on Cancer) - Summaries & Evaluations, Propylene, 60 (1994) (<http://www.inchem.org/documents/iarc/vol60/m60-03.html>)
Emergency Response Information Propylene (http://www.ericards.net/psp/ericonline.psp_ericard?lang=1&subkey=10770423)

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