

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Propylene (refrigerated)

Version 17.0

Revision Date: 29.04.2024

Former date: 30.05.2022

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : Chemical Grade Propylene (refrigerated), Polymer Grade Propylene (refrigerated)

REACH Registration Number : 01-2119447103-50-0001, 01-2119447103-50-0002, 01-2119447103-50-0003, 01-2119447103-50-0008, 01-2119447103-50-XXXX

Substance name : propylene

EC-No. : 204-062-1

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

Use of the Substance/Mixture : Manufacture, Formulation & (re)packing of substances and mixtures, Use as an intermediate, Use in polymer production, Fuel, Propellant

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
Trabrennstrasse 6-8, 1020 Vienna, Austria
Telephone: +43 1 22400 0

E-mail address : sds@borealisgroup.com

1.4 Emergency telephone number

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable gases, Category 1A

H220: Extremely flammable gas.

Gases under pressure, Refrigerated
liquefied gas

H281: Contains refrigerated gas; may cause
cryogenic burns or injury.

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 heat, hot surfaces, sparks, open
flames and other ignition sources. 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 In case of leakage, eliminate all ignition sources.

P336 Thaw frosted parts with lukewarm water. Do not rub
affected area.

Storage:

P403 Store in a well-ventilated place.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Rapid evaporation of the product may cause frostbite.

May displace oxygen and cause rapid suffocation.

Risk of explosion if heated under confinement.

Vapours may form explosive mixtures with air.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name : propylene

EC-No. : 204-062-1

Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)	M-Factor, SCL, ATE
propene	115-07-1 204-062-1	>= 90 - <= 100	
propane	74-98-6 200-827-9	>= 0 - < 10	

SECTION 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.
Give oxygen or artificial respiration if needed.
Seek medical advice immediately.

In case of skin contact : Remove/ Take off immediately all contaminated clothing.
If clothing already frozen and stuck to the skin:

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- Do not remove contaminated clothing.
Wash frost-bitten areas with plenty of lukewarm water.
Do not rub affected area.
Seek medical advice.
- In case of eye contact : Remove contact lenses.
Rinse thoroughly with plenty of water, also under the eyelids.
Keep eye wide open while rinsing.
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 any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.
Control of circulatory system, shock therapy if needed.
Treat frost-bitten areas as needed.

SECTION 5: Firefighting 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 firefighting : Risk of explosion.
Exposure to decomposition products may be a hazard to health.
Incomplete combustion may produce:
Carbon monoxide

5.3 Advice for firefighters

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

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Further information : Keep people away from and upwind of spill/leak.
Attempt to stop leakage without personal risk.
If conditions permit, let fire burn itself out.
Cool tanks with water spray.
If possible, containers should be moved to safe place.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.
Keep people away from and upwind of spill/leak.
Attempt to stop leakage without personal risk.
Eliminate all ignition sources if safe to do so.
Ensure adequate ventilation, especially in confined areas.
Pay attention to the spreading of gases especially at ground level (heavier than air) and to the direction of the wind.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
See chapter 8.

6.2 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 material for containment and cleaning up

Allow to evaporate.
Ensure adequate ventilation, especially in confined areas.
Do NOT use water jet.

6.4 Reference to other sections

For personal protection see section 8.

SECTION 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

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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 in a dry, cool and well-ventilated place. Keep product and empty container away from heat and sources of ignition. Protect from sunlight.

Further information on storage conditions : Protect container from physical shock.

Advice on common storage : Incompatible with strong bases and oxidizing agents.

7.3 Specific end use(s)

Specific use(s) : Not applicable

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Propylene (refrigerated)				
Remarks:	Not possible from current data.			

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Propylene (refrigerated)		
Remarks:	Not applicable	

8.2 Exposure controls

Engineering measures

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

Personal protective equipment

Eye protection : Safety goggles or face-shield.
Equipment should conform to EN 166

Hand protection

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- Remarks : Cold-insulating gloves (e.g. nitrile rubber).
The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).
- Skin and body protection : Wear suitable protective clothing and rubber boots.
- 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.

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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Physical state : Refrigerated liquefied gas
- Colour : colourless
- Odour : mild, aromatic
- Odour Threshold : 69,3 - 203,5 ppm
- Melting point : -185 °C
(1013,0 hPa)
- Boiling point : -48 °C (1013,0 hPa)
- Flammability : Extremely flammable.
- Upper explosion limit / Upper flammability limit : 11 %(V)
- Lower explosion limit / Lower flammability limit : 2 %(V)
- Flash point : Not applicable
- Auto-ignition temperature : 455 °C (1.013 hPa)
- Decomposition temperature : Heating or fire can release toxic and irritating gases.
- pH : No data available

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Viscosity		
Viscosity, dynamic	:	Not applicable (gaseous)
Viscosity, kinematic	:	Not applicable (gaseous)
Solubility(ies)		
Water solubility	:	0,2 g/l (25 °C)
Solubility in other solvents	:	No data available
Partition coefficient: n- octanol/water	:	log Pow: 1,77 (20 °C)
Vapour pressure	:	11.580 hPa (25 °C)
Relative density	:	Not applicable (gaseous)
Relative vapour density	:	1,4

9.2 Other information

Evaporation rate	:	No data available
Molecular weight	:	42,08 g/mol

SECTION 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. Hazardous polymerisation may occur.
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10.4 Conditions to avoid

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

Materials to avoid : Strong bases
Strong oxidizing agents

10.6 Hazardous decomposition products

In case of fire hazardous decomposition products may be produced such as:
Carbon monoxide

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Based on available data, the classification criteria are not met.

Components:

propene:

Acute oral toxicity : Remarks: Not relevant
(gaseous)

Acute inhalation toxicity : Remarks: No adverse effect has been observed in acute
toxicity tests.

Acute dermal toxicity : Remarks: Not relevant
(gaseous)

propane:

Acute oral toxicity : Remarks: study technically not feasible
(gaseous)

Acute inhalation toxicity : LC50: 1.443 mg/l
Exposure time: 15 min
Symptoms: Central nervous system depression
Remarks: Acute toxicity:
low.

Acute dermal toxicity : Remarks: study technically not feasible
(gaseous)

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

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Respiratory or skin sensitisation

Skin sensitisation

Based on available data, the classification criteria are not met.

Respiratory sensitisation

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Components:

propene:

Genotoxicity in vitro : Remarks: No significant adverse effects were reported

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Rat (male)
Method: OECD Test Guideline 474
Remarks: In vivo tests did not show mutagenic effects

propane:

Genotoxicity in vitro : Test Type: Ames test
Result: negative
Remarks: In vitro tests did not show mutagenic effects

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Result: negative
Remarks: Read-across (Analogy)

Carcinogenicity

Based on available data, the classification criteria are not met.

Components:

propene:

Species : Rat
: 10.000 ppm
Method : OECD Test Guideline 453
Remarks : negative

propane:

Remarks : This information is not available.

Reproductive toxicity

Based on available data, the classification criteria are not met.

Components:

propene:

Effects on fertility : Application Route: inhalation (gas)
Remarks: No adverse effects

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Effects on foetal development : Application Route: Inhalation
Symptoms: No adverse effects

propane:
Effects on foetal development : General Toxicity Maternal: NOAEL: 12.000 ppm
Teratogenicity: NOAEL F1: 12.000 ppm
Method: OECD Test Guideline 422

STOT - single exposure

Based on available data, the classification criteria are not met.

STOT - repeated exposure

Based on available data, the classification criteria are not met.

Aspiration toxicity

Based on available data, the classification criteria are not met.

Components:

propane:
No aspiration toxicity classification

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Further information

Product:

Remarks : Absorbs into the body by inhalation.

SECTION 12: Ecological information

12.1 Toxicity

Components:

propene:
Toxicity to fish : LC50 : 51,7 mg/l

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	Exposure time: 96 h Method: QSAR
Toxicity to daphnia and other aquatic invertebrates	: LC50 (Daphnia (water flea)): 28,2 mg/l Exposure time: 48 h Method: QSAR
Toxicity to algae/aquatic plants	: EC50 (algae): 12,1 mg/l Exposure time: 96 h Method: QSAR
	NOEC (algae): 4,5 mg/l Exposure time: 96 h Method: QSAR
Toxicity to microorganisms	: Remarks: No data available
Toxicity to fish (Chronic toxicity)	: Chronic Toxicity Value: 5,3 mg/l Exposure time: 30 d Method: QSAR
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: Chronic Toxicity Value: 3,1 mg/l Exposure time: 16 d Species: Daphnia sp. (water flea) Method: QSAR
Toxicity to soil dwelling organisms	: LC50: 39,55 mg/kg Exposure time: 28 d Species: Eisenia fetida (earthworms)
propane:	
Toxicity to fish	: LC50 : 49,47 mg/l Exposure time: 96 h Test Type: Short term Method: QSAR
Toxicity to daphnia and other aquatic invertebrates	: LC50 (Daphnia (water flea)): 27,14 mg/l Exposure time: 48 h Test Type: Short term Method: QSAR
Toxicity to algae/aquatic plants	: EC50 : 11,89 mg/l Method: QSAR
Toxicity to microorganisms	: Remarks: No data available
Toxicity to fish (Chronic)	: Remarks: No data available

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toxicity)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: No data available

12.2 Persistence and degradability

Components:

propene:

Biodegradability : Remarks: Readily biodegradable.

propane:

Biodegradability : Method: QSAR
Remarks: Readily biodegradable.

Physico-chemical removability : Remarks: Prone to photochemical degradation, reacting with OH radicals and ozone.
Estimated atmospheric lifetime: ca. 14 days

12.3 Bioaccumulative potential

Components:

propene:

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

propane:

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

12.4 Mobility in soil

Components:

propene:

Mobility : Medium: Soil
Remarks: Not expected to adsorb on soil., The product evaporates readily to air.

propane:

Mobility : Medium: Soil
Remarks: Not expected to adsorb on soil., Partition coefficient (n-octanol/water) log Kow < 3., The product evaporates readily to air.

12.5 Results of PBT and vPvB assessment

Product:

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Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : This product has no known ecotoxicological effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

SECTION 14: Transport information

14.1 UN number or ID number

ADR : UN 1077

IMDG : UN 1077

14.2 UN proper shipping name

ADR : PROPYLENE

IMDG : PROPYLENE

14.3 Transport hazard class(es)

ADR : 2

IMDG : 2.1

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14.4 Packing group

ADR

Packing group : Not assigned by regulation
Classification Code : 2F
Hazard Identification Number : 23
Labels : 2.1
Tunnel restriction code : (B/D)

IMDG

Packing group : Not assigned by regulation
Labels : 2.1
EmS Code : F-D, S-U

14.5 Environmental hazards

ADR

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

Remarks : SDS: No specific instructions needed.

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Remarks : Not applicable

SECTION 15: Regulatory information

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

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Category		Quantity 1	Quantity 2
P2	FLAMMABLE GASES	10 t	50 t

Other regulations:

No data available

15.2 Chemical safety assessment

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

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SECTION 16: Other information

Full text of other abbreviations

Further information

- Training advice : Provide adequate information, instruction and training for operators.
Regular trainings of all employees which are involved in the transport of dangerous goods (according to chapter 1.3 ADR).
- Other information : Issued according to Regulation (EC) No 1907/2006, Annex II, and its amendments.
Changes since the last version are highlighted in the margin.
This version replaces all previous versions.
- Issuer : Borealis, Group Product Stewardship
- Sources of key data used to compile the Safety Data Sheet : Chemical Safety Report, Propene. Lower Olefins and Aromatics REACH Consortium, 2022
International Chemical Safety Card, Propylene, Nov. 1998, updated 2007
(<http://www.inchem.org/documents/icsc/icsc/eics0559.htm>)

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Borealis makes no warranties which extend beyond the description contained herein. Nothing herein shall constitute any warranty of merchantability or fitness for a particular purpose.

It is the customer's responsibility to inspect and test our products in order to satisfy itself as to the suitability of the products for the customer's particular purpose. The customer is responsible for the appropriate, safe and legal use, processing and handling of our products.

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