

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Refinery Grade Propylene

Version 6.0

Revision Date: 21.12.2022

Former date: 21.11.2017

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

1.1 Product identifier

Trade name : Refinery Grade Propylene

REACH Registration Number : 01-2119521732-46-0017

Substance name : Hydrocarbons, C3

EC-No. : 271-735-4

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

Use of the Substance/Mixture : Use as an intermediate, Distribution

1.3 Details of the supplier of the safety data sheet

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

+44 (0) 1235 239 670 (NCEC Carechem 24)

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, Liquefied gas H280: Contains gas under pressure; may explode if heated.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

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Hazard pictograms :



Signal word :

Danger

Hazard statements :

H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

Precautionary statements :

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P220 Keep away from clothing and other combustible materials.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 In case of leakage, eliminate all ignition sources.

Storage:

P410 + P403 Protect from sunlight. 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.

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 liquid may cause frostbite.

Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Risk of explosion if heated under confinement.

Vapours may form explosive mixtures with air.

High risk of fire in case of leakage.

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SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name : Hydrocarbons, C3
EC-No. : 271-735-4

Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)	M-Factor, SCL, ATE
propene	115-07-1 204-062-1	>= 60 - < 80	
propane	74-98-6 200-827-9	>= 20 - < 40	

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.
In case of breathing difficulties, apply mouth to mouth respiration.
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:
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.

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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 : Vapours may form explosive mixtures with air.
Flash back possible over considerable distance.
Do not allow run-off from fire fighting to enter drains or water courses.

Incomplete combustion may produce:
Carbon monoxide

5.3 Advice for firefighters

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

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 containers/tanks with water spray.
If possible, containers should be moved to safe place.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Attempt to stop leakage without personal risk.
Eliminate all ignition sources if safe to do so.
Keep people away from and upwind of spill/leak.
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.
Keep people away from and upwind of spill/leak.
Attempt to stop leakage without personal risk.
Observe the risk of explosion.
Keep away from sources of ignition - No smoking.

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

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

6.4 Reference to other sections

For personal protection see section 8.
For disposal considerations see section 13.

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.
Ensure that eyewash stations and safety showers are close to the workstation location.

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.

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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 cool, 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. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

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

7.3 Specific end use(s)

Specific use(s) : Reserved for industrial and professional use.

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
Refinery Grade Propylene				
Remarks:	Not applicable			

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

Substance name	Environmental Compartment	Value
Refinery Grade Propylene		
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. Safety shoes Leather 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.
Protective measures	: Avoid contact with skin, eyes and clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Environmental exposure controls

General advice	: Prevent product from entering environment and drains. Prevent further leakage or spillage if safe to do so. Observe the risk of explosion. If major spillage occurs, contact the proper local authorities.
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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: Compressed gas
Colour	: clear
Odour	: mild, aromatic
Odour Threshold	: No data available
Melting point	: -186 °C (1.013 hPa)
Boiling point	: -46 °C (1.013 hPa)
Flammability	: Extremely flammable.

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Upper explosion limit / Upper flammability limit	:	10 %(V)
Lower explosion limit / Lower flammability limit	:	2 %(V)
Flash point	:	No data available
Decomposition temperature	:	Heating or fire can release toxic and irritating gases.
pH	:	No data available
Viscosity		
Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	No data available
Solubility(ies)		
Water solubility	:	< 0,1 g/l (20 °C)
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	log Pow: 1,77
Vapour pressure	:	965 kPa (25 °C)
Density	:	1,86 kg/m ³
Bulk density	:	No data available
Relative vapour density	:	1,5 (Air = 1.0)
Particle size	:	Not applicable

9.2 Other information

Explosives	:	Vapours may form explosive mixture with air.
Self-ignition	:	457 °C
Evaporation rate	:	No data available

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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.

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
Strong oxidizing agents
Reacts violently with:
Chlorine

10.6 Hazardous decomposition products

None.

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

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(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.

Product:

Remarks : Contact with liquid or refrigerated gas can cause cold burns
and frostbite.

Serious eye damage/eye irritation

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

Product:

Remarks : Non persistent irritation

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.

Product:

Remarks : This information is not available.

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:

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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

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.

Product:

Exposure routes : Inhalation
Assessment : May cause effects on the central nervous system, resulting in lowering of consciousness.

STOT - repeated exposure

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

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Repeated dose toxicity

Product:

Application Route : Inhalation
Remarks : The substance may cause effects on the:
Central nervous system depression

Application Route : Dermal
Remarks : Not applicable
(gaseous)

Application Route : Oral
Remarks : Not applicable
(gaseous)

Aspiration toxicity

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

Product:

No data available

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.

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SECTION 12: Ecological information

12.1 Toxicity

Components:

propene:

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

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Toxicity to algae/aquatic plants	:	EC50 : 11,89 mg/l Method: QSAR
Toxicity to microorganisms	:	Remarks: 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

Product:

Photodegradation : Remarks: Prone to photochemical degradation, reacting with OH radicals and ozone.

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) $\log P_{ow} < 3$.

propane:

Bioaccumulation : Remarks: Bioaccumulation not expected: Partition coefficient (n-octanol/water) $\log P_{ow} < 3$.

12.4 Mobility in soil

Components:

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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:

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 : The product is not considered hazardous for the environment.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

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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

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 : No data is available on the product itself.

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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

Volatile organic compounds : Directive 1999/13/EC
Not applicable

Other regulations:

No data available

15.2 Chemical safety assessment

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

SECTION 16: Other information

Full text of other abbreviations

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.

Sources of key data used to compile the Safety Data Sheet : International Chemical Safety Card, Propylene, Nov. 1998, updated 2007
(<http://www.inchem.org/documents/icsc/icsc/eics0559.htm>)
International Chemical Safety Card, Propane, November 2003, updated 2007
(<http://www.inchem.org/documents/icsc/icsc/eics0319.htm>)
Chemical Safety Report, Propane. Lower Olefins and Aromatics REACH Consortium, 2010
Chemical Safety Report, Propene. Lower Olefins and Aromatics REACH Consortium, 2022
Chemical Safety Report, Other Petroleum Gases. Lower Olefins and Aromatics REACH Consortium, 2021

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Disclaimer

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