Refinery Grade Propylene

Version 7.0

Revision Date: 29.04.2024

Former date: 21.12.2022

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

1.1 Product identifier	
Trade name	

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	:	Use as an intermediate,	Distribution
Substance/Mixture			

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

: <u>sds@borealisgroup.com</u>

1.4 Emergency telephone number

+1 760 476 3962 (3E), Access code: 336296

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable gases, Category 1A Gases under pressure, Liquefied gas H220: Extremely flammable gas. H280: Contains gas under pressure; may explode if heated.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



: Danger



according to Regulation (EC) No. 1907/2006

Refinery Grade Propylene				
Version 7.0	Revision Date: 29.04.2024	Former date: 21.12.2022		
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 extin stopped safely. P381 In case of leakage, eliminate			
	Storage: P410 + P403 Protect from sunlight place.	. Store in a well-ventilated		

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.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name : Hydrocarbons, C3

EC-No.

: 271-735-4



Refinery Grade Propylene

Version 7.0

Revision Date: 29.04.2024

Former date: 21.12.2022

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).
lf inhalec	: :	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 c	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 c	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 swallow	wed :	Not probable: The product evaporates readily.
4.2 Most imp	ortant symptoms and e	effects, both acute and delayed
Sympton	ns :	Inhalation may provoke the following symptoms: Drowsiness Suffocation Inhalation may cause central nervous system effects.
		Skin contact may provoke the following symptoms: Frostbite



Refinery Grade Propylene

Version 7.0

Revision Date: 29.04.2024

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 th	e 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.

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.



Refinery Grade Propylene

Version 7.0

Revision Date: 29.04.2024

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. 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.



according to Regulation (EC) No. 1907/2006

Refinery Grade Propylene

Version 7.0	Revision Date: 29.04.2024	Former date: 21.12.2022
Advice on common storage	: Incompatible with strong acids and oxidi	zing 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 Hand protection	Safety goggles or face-shield. Equipment should conform to EN 166
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



according to Regulation (EC) No. 1907/2006 Refinery Grade Propylene

Rennery Grade Frop	ylelle	
Version 7.0	Revision Date: 29.04.2024	Former date: 21.12.2022
Protective measures	 reducing oxygen available for breathing. 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	e controls	
General advice	 Prevent product from entering er Prevent further leakage or spillag the risk of explosion. If major spil proper local authorities. 	ge if safe to do so. Observe

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state Colour Odour Odour Threshold	: : :	Compressed gas clear mild, aromatic No data available
Melting point	:	-186 °C (1.013 hPa)
Boiling point	:	-46 °C (1.013 hPa)
Flammability	:	Extremely flammable.
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.
рН	:	No data available
Viscosity Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	No data available
Solubility(ies) Water solubility	:	< 0,1 g/l (20 °C)



Refinery Grade Propylene

Version 7.0	Revision Date: 29.04.2024	Former date: 21.12.2022
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/m³	
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 wi	th air.
Self-ignition	: 457 °C	
Evaporation rate	: No data available	

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



Refinery Grade Propylene

Version 7.0

Revision Date: 29.04.2024

10.6 Hazardous decomposition products

None.

Acute toxicity

SECTION 11: Toxicological information

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

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.

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



Refinery Grade Propylene

Version 7.0

Revision Date: 29.04.2024

Respiratory or skin sensit	isation
Skin sensitisation	
Based on available data, the	e classification criteria are not met.
Respiratory sensitisation	
Based on available data, the	e classification criteria are not met.
Product:	
Remarks	: This information is not available.
Germ cell mutagenicity	
Based on available data, the	e 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
	Remarks. In two tests did not show mutagenic enects
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)
	Remarko. Redu doloso (Analogy)
Carcinogenicity	
U U	

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

Components:		
propene: Species		Rat
Species	÷	10.000 ppm
Method	:	OECD Test Guideline 453
Remarks	:	negative
propane: Remarks	:	This information is not available.



Refinery Grade Propylene

Version 7.0

Revision Date: 29.04.2024

Former date: 21.12.2022

Reproductive toxicity

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

Components:

propene:	Application Route: inhalation (gas)
Effects on fertility :	Remarks: No adverse effects
Effects on foetal :	Application Route: Inhalation
development	Symptoms: No adverse effects
propane:	General Toxicity Maternal: NOAEL: 12.000 ppm
Effects on foetal :	Teratogenicity: NOAEL F1: 12.000 ppm
development	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.

Repeated dose toxicity

Product:

Application Route Remarks	:	Inhalation The substance may cause effects on the: Central nervous system depression
Application Route Remarks	:	Dermal Not applicable (gaseous)
Application Route Remarks	:	Oral Not applicable (gaseous)

Aspiration toxicity

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

Product:

No data available



Refinery Grade Propylene

Version 7.0 Revision Date: 29.04.2024 Former date: 21.12.2022 **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 Exposure time: 96 h Method: QSAR
Toxicity to daphnia aquatic invertebrate		LC50 (Daphnia (water flea)): 28,2 mg/l Exposure time: 48 h Method: QSAR
Toxicity to algae/ac plants	quatic :	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 microorg	ganisms :	Remarks: No data available



Refinery Grade Propylene

Version 7.0	Revision Date: 29.04.2024 Former da	te: 21.12.2022
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	
toxicity) Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: Remarks: No data available	
12.2 Persistence and degradabil	ity	
Product:		
Photodegradation	: Remarks: Prone to photochemical degradation, reac OH radicals and ozone.	ting with
Components:		
propene: Biodegradability	: Remarks: Readily biodegradable.	
propane: Biodegradability	: Method: QSAR Remarks: Readily biodegradable.	



according to Regulation (EC) No. 1907/2006

Refinery Grade Pro	pyiene	
Version 7.0	Revision Date: 29.04.2024	Former date: 21.12.2022
Physico-chemical removability	: Remarks: Prone to photochemic OH radicals and ozone. Estimated atmospheric lifetime: ca. 14 days	al degradation, reacting with
2.3 Bioaccumulative pote	ntial	
Components:		
propene: Bioaccumulation	: Remarks: Bioaccumulation not e (n-octanol/water) log Pow < 3.	expected: Partition coefficient
propane: Bioaccumulation	: Remarks: Bioaccumulation not e (n-octanol/water) log Pow < 3.	expected: Partition coefficient
2.4 Mobility in soil		
Components:		
propene: Mobility	: Medium: Soil Remarks: Not expected to adsor evaporates readily to air.	b on soil., The product
propane: Mobility	: Medium: Soil Remarks: Not expected to adsor (n-octanol/water) log Kow < 3., T readily to air.	
2.5 Results of PBT and vi	PvB assessment	
Product:		
Assessment	 This substance/mixture contains to be either persistent, bioaccum very persistent and very bioaccu A1% or biober 	nulative and toxic (PBT), or

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.

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0.1% or higher..

Refinery Grade Propylene

Version 7.0

Revision Date: 29.04.2024

Former date: 21.12.2022

12.7 Other adverse effects

Product:

Additional ecological : The product is not considered hazardous for the environment. information

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
14.4 Packing group		
ADR Packing group Classification Code Hazard Identification Number Labels Tunnel restriction code	:	Not assigned by regulation 2F 23 2.1 (B/D)
IMDG Packing group Labels EmS Code	:	Not assigned by regulation 2.1 F-D, S-U
14.5 Environmental hazards		



Refinery Grade Propylene

Version 7.0	Revision Date: 29.04.2024	Former date: 21.12.2022
ADR Environmentally hazardous	: no	
IMDG Marine pollutant	: no	
14.6 Special precautions for use	r	
upon the properties of the un	: SDS: No specific instructions needed. provided herein are for informational purpo backaged material as it is described within t may vary by mode of transportation, packa	oses only, and solely based his Safety Data Sheet.

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



Refinery G	Grade Propy	lene
Varaian 7.0		Povinion Dot

Version 7.0	Revision Date: 29.04.2024	Former date: 21.12.2022
Issuer	: Borealis, Group Product Stewardship	
Sources of key data used to compile the Safety Data Sheet	 International Chemical Safety Card, Propupdated 2007 (http://www.inchem.org/documents/icsc/id International Chemical Safety Card, Prop 2003, updated 2007 (http://www.inchem.org/documents/icsc/id Chemical Safety Report, Propane. Lower Aromatics REACH Consortium, 2023 Chemical Safety Report, Propene. Lower Aromatics REACH Consortium, 2022 Chemical Safety Report, Other Petroleum Olefins and Aromatics REACH Consortiu 	csc/eics0559.htm) bane, November csc/eics0319.htm) Olefins and Olefins and n Gases. Lower

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