

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

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

1.1 Product identifier

Trade name	: Propene/Propane Mix
Product code	: X2120

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

Use of the Sub- stance/Mixture	: Refinery Feedstock. Please refer to Ch16 for the registered uses under REACH.
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Uses advised against	: This product must not be used in applications other than those listed in Section 1 without first seeking the advice of the supplier.
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1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier	: Shell Chemicals Europe B.V. PO Box 2334 3000 CH Rotterdam Netherlands
Telephone	: +31 (0)10 441 5137 / +31 (0)10 441 5191
Telefax	: +31 (0)20 716 8316 / +31 (0)20 713 9230
Contact for Safety Data Sheet	: sccmsds@shell.com

1.4 Emergency telephone number

+44 (0) 1235 239 670
Nationaal Vergiftigingen Informatie Centrum (NVIC): Tel. nr. +31(0)88 755 8000 (24 uur per dag en 7 dagen per week).
(Uitsluitend bestemd om artsen te informeren bij accidentele vergiftigingen).

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.
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Gases under pressure, Liquefied gas	H280: Contains gas under pressure; may explode if heated.
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2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

Hazard pictograms



Signal word

: Danger

Hazard statements

:
PHYSICAL HAZARDS:
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
HEALTH HAZARDS:
Not classified as a health hazard under CLP criteria.
ENVIRONMENTAL HAZARDS:
Not classified as environmental hazard according to CLP criteria.

Precautionary statements

:
Prevention:
P102 Keep out of reach of children.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243 Take action to prevent static discharges.
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.
Disposal:
No precautionary phrases.

2.3 Other hazards

The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

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.

Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire danger.

High gas concentrations will displace available air; unconsciousness and death may occur suddenly from lack of oxygen.

Exposure to rapidly expanding gases may cause frost burns to eyes and/or skin.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version 1.1 Revision Date: 05.10.2023 SDS Number: 800010061720 Date of last issue: 03.10.2023
Print Date 12.10.2023

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : It may also contain one or more of the following additives: odourants (usually ethyl mercaptan), anti-icing agents.

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Propylene	115-07-1 204-062-1 601-011-00-9 01-2119447103-50	Flam. Gas 1A; H220	50 - 70
propane	74-98-6 200-827-9 601-003-00-5 01-2119486944-21	Flam. Gas 1A; H220 Press. Gas Liquefied gas; H280	30 - 50

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- Protection of first-aiders : When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.
- If inhaled : Call emergency number for your location / facility.
Remove to fresh air. Do not attempt to rescue the victim unless proper respiratory protection is worn. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting, or unresponsive, give 100% oxygen with rescue breathing or Cardio-Pulmonary Resuscitation as required and transport to the nearest medical facility.
- In case of skin contact : In the event of frostbite, slowly warm the exposed area by rinsing with warm water.
Seek medical advice.
Transport to the nearest medical facility for additional treatment.
- In case of eye contact : Flush eye with copious quantities of water.
Remove contact lenses, if present and easy to do. Continue rinsing.
If persistent irritation occurs, obtain medical attention.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

In the event of frostbite, slowly warm the exposed area by rinsing with warm water.
Transport to the nearest medical facility for additional treatment.

If swallowed : In the unlikely event of ingestion, obtain medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : High gas concentrations will displace available air; unconsciousness and death may occur suddenly from lack of oxygen.
Rapid release of gases which are liquids under pressure may cause frost burns of exposed tissues (skin, eye) due to evaporative cooling.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT!
Potential for cardiac sensitisation, particularly in abuse situations. Hypoxia or negative inotropes may enhance these effects. Consider: oxygen therapy.
Call a doctor or poison control center for guidance.
Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Shut off supply. If not possible and no risk to surroundings, let the fire burn itself out.
Keep containers and surroundings cool with water spray.
Large fires should only be fought by properly trained fire fighters.

Unsuitable extinguishing media : Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Hazardous combustion products may include:
Carbon monoxide may be evolved if incomplete combustion occurs.
Unidentified organic and inorganic compounds.
Sustained fire attack on vessels may result in a Boiling Liquid Expanding Vapor Explosion (BLEVE).
Contents are under pressure and can explode when exposed to heat or flames.
The vapour is heavier than air, spreads along the ground and distant ignition is possible.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

5.3 Advice for firefighters

- | | | |
|---|---|---|
| Special protective equipment for firefighters | : | Wear full protective clothing. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469). |
| Specific extinguishing methods | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Further information | : | Clear fire area of all non-emergency personnel.
Keep adjacent containers cool by spraying with water.
If possible remove containers from the danger zone.
If the fire cannot be extinguished the only course of action is to evacuate immediately. |

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- | | | |
|----------------------|---|--|
| Personal precautions | : | 6.1.1 For non emergency personnel:
Stay upwind and keep out of low areas.
Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Attempt to disperse the gas or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas meter.
Vapour may form an explosive mixture with air.
6.1.2 For emergency responders:
Test atmosphere for flammable gas concentrations to ensure safe working conditions before personnel are allowed to enter the area.
Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. |
|----------------------|---|--|

6.2 Environmental precautions

- | | | |
|---------------------------|---|---|
| Environmental precautions | : | Risk of explosion. Inform the emergency services if product enters surface water drains.
Prevent from spreading or entering into waterways, sewers, basements or confined areas. |
|---------------------------|---|---|

6.3 Methods and material for containment and cleaning up

- | | | |
|-------------------------|---|--|
| Methods for cleaning up | : | Allow to evaporate.
Attempt to disperse the gas or to direct its flow to a safe location, for example by using fog sprays.
Ventilate contaminated area thoroughly. |
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6.4 Reference to other sections

For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- | | |
|-------------------------|---|
| Technical measures | :
Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet.
Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Air-dry contaminated clothing in a well-ventilated area before laundering.
Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.
Take precautionary measures against static discharges. |
| Advice on safe handling | :
Ensure that all local regulations regarding handling and storage facilities are followed.
This product is intended for use in closed systems only.
This product can create a low temperature exposure hazard when released as a liquid.
Exposure to rapidly expanding gases may cause frost burns to eyes and/or skin.
Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks.
Avoid prolonged or repeated contact with skin.
Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire.
Earth all equipment.
Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.

Delivery lines may become cold enough to present a cold burns hazard. |
| Product Transfer | :
Refer to guidance under Handling section. Do not use compressed air for filling discharge or handling. Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment. |

7.2 Conditions for safe storage, including any incompatibilities

- | | |
|--|---|
| Further information on storage stability | :
Store only in purpose-designed, appropriately labelled pressure vessels or cylinders.
Must be stored in a well-ventilated area, away from sunlight, ignition sources and other sources of heat.
Do not store near cylinders containing compressed oxygen or other strong oxidizers.
Refer to section 15 for any additional specific legislation covering the packaging and storage of this product. |
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SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version 1.1 Revision Date: 05.10.2023 SDS Number: 800010061720 Date of last issue: 03.10.2023
Print Date 12.10.2023

- Packaging material : Suitable material: For containers and container linings, use materials specifically approved for use with this product., Examples of suitable materials are: PA-11, PEEK, PVDF, PTFE, GRE (Epoxy), GRVE (vinyl ester), Viton (FKM), type F and GB, Neoprene (CR).
Unsuitable material: Some forms of cast iron., Examples of materials to avoid are: ABS, polymethyl methacrylate (PMMA), polyethylene (PE / HDPE), polypropylene (PP), PVC, natural rubber (NR), Nitrile (NBR) ethylene propylene rubber (EPDM), Butyl (IIR), Hypalon (CSM), polystyrene, polyvinyl chloride (PVC), polyisobutylene., For containers and container linings, aluminium should not be used if there is a risk of caustic contamination of the product.
- Container Advice : Do not cut, drill, grind, weld or perform similar operations on or near containers. Containers, even those that have been emptied, can contain explosive vapours.

7.3 Specific end use(s)

- Specific use(s) : Not applicable.
- See additional references that provide safe handling practices: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity).
IEC/TS 60079-32-1: Electrostatic hazards, guidance

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

None established.

Biological occupational exposure limits

No biological limit allocated.

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

Remarks:	No DNEL value has been established.
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Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Remarks:	Exposure assessments have not been presented for the environment therefore PNEC values not required.	

8.2 Exposure controls

Engineering measures

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include:

Use sealed systems as far as possible.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.

Local exhaust ventilation is recommended.

Eye washes and showers for emergency use.

General Information:

Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Define procedures for safe handling and maintenance of controls.

Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.

Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.

Drain down system prior to equipment break-in or maintenance.

Retain drain downs in sealed storage pending disposal or for subsequent recycle.

Personal protective equipment

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards.

Eye protection : Wear goggles for use against liquids and gas, combined with face shield with chin guard.

Approved to EU Standard EN166.

Hand protection

Remarks : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Neoprene rubber. Nitrile rubber. If contact with liquefied product is possible or anticipated, gloves should be thermally insulated to prevent cold burns. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. Suitability and durability of a glove is dependent on usage,

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Skin and body protection : Chemical and cold resistant gloves/gauntlets, boots, and apron.

Respiratory protection : If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.

Select a filter suitable for organic gases and vapours [Type AX boiling point < 65°C (149°F)] meeting EN14387.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: liquid
Colour	: colourless
Odour	: Unstented
Odour Threshold	: Data not available
Boiling point/boiling range	: -48 - -42 °CMethod: Unspecified
Flammability	
Flammability (solid, gas)	: Extremely flammable.
Lower explosion limit and upper explosion limit / flammability limit	
Upper explosion limit / upper flammability limit	: Typical 10 %(V)
Lower explosion limit / Lower flammability limit	: Typical 2 %(V)

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

Flash point : $\geq -108\text{ °C}$
Method: Unspecified

Auto-ignition temperature : Data not available

Decomposition temperature
Decomposition temperature : Data not available

pH : Not applicable

Viscosity
Viscosity, dynamic : Data not available

Viscosity, kinematic : Method: Unspecified
Not applicable

Method: Unspecified
Not applicable

Method: Unspecified
Not applicable

Solubility(ies)
Water solubility : Data not available

Solubility in other solvents : Data not available

Partition coefficient: n-octanol/water : Data not available

Vapour pressure : Data not available (50,0 °C)
Method: Unspecified

Relative density : Data not available

Density : 580 - 610 kg/m³ (15,0 °C)
Method: Unspecified

Relative vapour density : Typical 0,96

Particle characteristics
Particle size : Data not available

9.2 Other information

Evaporation rate : Data not available

Conductivity : Low conductivity: < 100 pS/m

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

SECTION 10: Stability and reactivity

10.1 Reactivity

No, product will not become self-reactive.

10.2 Chemical stability

Stable.

10.3 Possibility of hazardous reactions

Hazardous reactions : No hazardous reaction is expected when handled and stored according to provisions

10.4 Conditions to avoid

Conditions to avoid : Avoid heat, sparks, open flames and other ignition sources.
Prevent vapour accumulation.
In certain circumstances product can ignite due to static electricity.

10.5 Incompatible materials

Materials to avoid : Strong oxidising agents.

10.6 Hazardous decomposition products

Hazardous decomposition products are not expected to form during normal storage.

SECTION 11: Toxicological information

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

Information on likely routes of exposure : Inhalation is the primary route of exposure although exposure may occur through skin or eye contact.

Acute toxicity

Product:

Acute oral toxicity : Remarks: Not applicable

Acute inhalation toxicity : LC 50 (Rat): > 20000 ppmV
Exposure time: 4 h
Remarks: Low toxicity by inhalation.
Based on available data, the classification criteria are not met.

Acute dermal toxicity : Remarks: Not applicable

Skin corrosion/irritation

Product:

Remarks : Not irritating to skin.
Based on available data, the classification criteria are not met.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version 1.1 Revision Date: 05.10.2023 SDS Number: 800010061720 Date of last issue: 03.10.2023
Print Date 12.10.2023

Serious eye damage/eye irritation

Product:

Remarks : Not irritating to eye.
Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Product:

Remarks : Not a sensitiser.
Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Product:

Genotoxicity in vivo : Remarks: Non mutagenic
Based on available data, the classification criteria are not met.

Germ cell mutagenicity- Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Carcinogenicity

Product:

Remarks : Not a carcinogen.
Based on available data, the classification criteria are not met.

Carcinogenicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Material	GHS/CLP Carcinogenicity Classification
Propylene	No carcinogenicity classification.
propane	No carcinogenicity classification.

Material	Other Carcinogenicity Classification
Propylene	IARC: Group 3: Not classifiable as to its carcinogenicity to humans

Reproductive toxicity

Product:

Effects on fertility :
Remarks: Not a developmental toxicant., Does not impair fertility., Based on available data, the classification criteria are not met.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

Reproductive toxicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

STOT - single exposure

Product:

Remarks : High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea.

STOT - repeated exposure

Product:

Remarks : Low systemic toxicity on repeated exposure.
Based on available data, the classification criteria are not met.

Aspiration toxicity

Product:

Not an aspiration hazard., Based on available data, the classification criteria are not met.

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 : Rapid release of gases which are liquids under pressure may cause frost burns of exposed tissues (skin, eye) due to evaporative cooling.
High gas concentrations will displace available air; unconsciousness and death may occur suddenly from lack of oxygen.
Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac arrest.

Remarks : Classifications by other authorities under varying regulatory frameworks may exist.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : Remarks: Data not available

Toxicity to daphnia and other aquatic invertebrates : Remarks: Data not available

Toxicity to algae/aquatic plants : Remarks: Data not available

Toxicity to fish (Chronic toxicity) : Remarks: Data not available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: Data not available

Toxicity to microorganisms : Remarks: Data not available

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: Oxidises rapidly by photo-chemical reactions in air. Readily biodegradable.

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Does not bioaccumulate significantly.

12.4 Mobility in soil

Product:

Mobility : Remarks: Because of their extreme volatility, air is the only environmental compartment that hydrocarbon gases will be found.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB..

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

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 : In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
Do not dispose into the environment, in drains or in water courses.
Given the nature and uses of this product, the need for disposal seldom arises. If necessary, dispose by controlled combustion in purpose-designed equipment. If this is not possible, contact the supplier.

Contaminated packaging : Drain container thoroughly.
After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard.
Do not pollute the soil, water or environment with the waste container.
Return part-used or empty cylinders to the supplier.
For tanks seek specialist advice from suppliers.
Dispose in accordance with prevailing regulations, preferably to a recognized collector or contractor. The competence of the collector or contractor should be established beforehand.

Local legislation

Remarks : Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Local regulations may be more stringent than regional or national requirements and must be complied with.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

EU Waste Disposal Code (EWC):
16 05 04 gases in pressure containers (including halons) containing dangerous substances.

The number given to waste is associated with the appropriate usage. The user must decide if their particular use results in another waste code being assigned.

SECTION 14: Transport information

14.1 UN number or ID number

ADN	: 1965
ADR	: 1965
RID	: 1965
IMDG	: 1965
IATA	: 1965

14.2 UN proper shipping name

ADN	: HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Mixture C)
ADR	: HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Mixture C (Propane))
RID	: HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Mixture C (Propane))
IMDG	: HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Propene, Propane)
IATA	: HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Propene, Propane)

14.3 Transport hazard class(es)

ADN	: 2
ADR	: 2
RID	: 2
IMDG	: 2.1
IATA	: 2.1

14.4 Packing group

ADN	
Packing group	: Not Assigned
Classification Code	: 2F
Hazard Identification Number	: 23
Labels	: 2.1
CDNI Inland Water Waste Agreement	: NST 3303 Hydrocarbon mixtures

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

ADR

Packing group	:	Not assigned by regulation
Classification Code	:	2F
Hazard Identification Number	:	23
Labels	:	2.1

RID

Packing group	:	Not assigned by regulation
Classification Code	:	2F
Hazard Identification Number	:	23
Labels	:	2.1

IMDG

Packing group	:	Not assigned by regulation
Labels	:	2.1

IATA

Packing group	:	Not Assigned
Labels	:	2.1

14.5 Environmental hazards

ADN

Environmentally hazardous	:	no
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ADR

Environmentally hazardous	:	no
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RID

Environmentally hazardous	:	no
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IMDG

Marine pollutant	:	no
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14.6 Special precautions for user

Remarks	:	Special Precautions: Refer to Section 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.
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14.7 Maritime transport in bulk according to IMO instruments

MARPOL Annex 1 rules apply for bulk shipments by sea.

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.	P2	FLAMMABLE GASES
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SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

Other regulations:

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

Product is subject to Major accident risk decision 2015 (BRZO+) based on Seveso III directive (2012/18/EU).

Product meets one or more criteria set for the Dutch list of 'substances of concern' (zeer zorgwekkende stoffen (ZZS)).

15.2 Chemical safety assessment

A Chemical Safety Assessment was performed for all substances of this product.

SECTION 16: Other information

Full text of H-Statements

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

Full text of other abbreviations

Flam. Gas	:	Flammable gases
Press. Gas	:	Gases under pressure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version	Revision Date:	SDS Number:	Date of last issue: 03.10.2023
1.1	05.10.2023	800010061720	Print Date 12.10.2023

Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECL - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Other information : A vertical bar (|) in the left margin indicates an amendment from the previous version.

Classification of the mixture:

Flam. Gas 1A	H220
Press. Gas Liquefied gas	H280

Classification procedure:

On basis of test data.
On basis of test data.

Identified Uses according to the Use Descriptor System

Uses - Worker

Title : Manufacture of substance- Industrial

Uses - Worker

Title : Distribution of substance- Industrial

Uses - Worker

Title : Use as an intermediate- Industrial

Uses - Worker

Title : Polymer production- Industrial

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

NL / EN

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version 1.1 Revision Date: 05.10.2023 SDS Number: 800010061720 Date of last issue: 03.10.2023
Print Date 12.10.2023

Exposure Scenario - Worker

300000010077	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Manufacture of substance- Industrial
Use Descriptor	Sector of Use: SU3, SU8, SU9 Process Categories: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC15 Environmental Release Categories: ERC1, ERC4
Scope of process	Manufacture of the substance or use as a process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
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Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Gas/liquefied gas
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	Risk Management Measures
General measures (Flammable gas)	Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the ATEX Directive 2014/34/EU and its subsequent updates. Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level. Use in contained systems. Avoid ignition sources – No smoking. Handle in well-ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version 1.1 Revision Date: 05.10.2023 SDS Number: 800010061720 Date of last issue: 03.10.2023
Print Date 12.10.2023

	Use non-sparking tools. Comply with relevant EU/national regulations. Review Safety Data Sheet for additional advice.
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Section 2.2	Control of Environmental Exposure
Not applicable.	
Frequency and Duration of Use	
Not applicable.	
Environmental factors not influenced by risk management	
Not applicable.	
Other Operational Conditions affecting Environmental Exposure	
Not applicable.	
Technical conditions and measures at process level (source) to prevent release	
Not applicable.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Not applicable.	
Organisational measures to prevent/limit release from site	
Not applicable.	
Conditions and Measures related to municipal sewage treatment plant	
Not applicable.	
Conditions and Measures related to external treatment of waste for disposal	
Not applicable.	
Conditions and measures related to external recovery of waste	
Not applicable.	

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment	
Not applicable.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
Not applicable.	

Section 4.2 -Environment	
Not applicable.	

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version 1.1 Revision Date: 05.10.2023 SDS Number: 800010061720 Date of last issue: 03.10.2023
Print Date 12.10.2023

Exposure Scenario - Worker

300000010078	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Distribution of substance- Industrial
Use Descriptor	Sector of Use: SU3, SU8, SU9 Process Categories: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC9, PROC15 Environmental Release Categories: ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7
Scope of process	Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
------------------	--

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Gas/liquefied gas
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	Risk Management Measures
General measures (Flammable gas)	Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the ATEX Directive 2014/34/EU and its subsequent updates. Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level. Use in contained systems. Avoid ignition sources – No smoking. Handle in well-ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version 1.1 Revision Date: 05.10.2023 SDS Number: 800010061720 Date of last issue: 03.10.2023
Print Date 12.10.2023

	Use non-sparking tools. Comply with relevant EU/national regulations. Review Safety Data Sheet for additional advice.
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Section 2.2	Control of Environmental Exposure
Not applicable.	
Frequency and Duration of Use	
Not applicable.	
Environmental factors not influenced by risk management	
Not applicable.	
Other Operational Conditions affecting Environmental Exposure	
Not applicable.	
Technical conditions and measures at process level (source) to prevent release	
Not applicable.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Not applicable.	
Organisational measures to prevent/limit release from site	
Not applicable.	
Conditions and Measures related to municipal sewage treatment plant	
Not applicable.	
Conditions and Measures related to external treatment of waste for disposal	
Not applicable.	
Conditions and measures related to external recovery of waste	
Not applicable.	

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment	
Not applicable.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
Not applicable.	

Section 4.2 -Environment	
Not applicable.	

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version 1.1 Revision Date: 05.10.2023 SDS Number: 800010061720 Date of last issue: 03.10.2023
Print Date 12.10.2023

Exposure Scenario - Worker

300000010079	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Use as an intermediate- Industrial
Use Descriptor	Sector of Use: SU3, SU8, SU9 Process Categories: PROC1, PROC2, PROC3, PROC8a, PROC8b, PROC15 Environmental Release Categories: ERC6a
Scope of process	Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
------------------	--

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Gas/liquefied gas
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).,
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	Risk Management Measures
General measures (Flammable gas)	Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the ATEX Directive 2014/34/EU and its subsequent updates. Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level. Use in contained systems. Avoid ignition sources – No smoking. Handle in well-ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version 1.1 Revision Date: 05.10.2023 SDS Number: 800010061720 Date of last issue: 03.10.2023
Print Date 12.10.2023

	Use non-sparking tools. Comply with relevant EU/national regulations. Review Safety Data Sheet for additional advice.
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Section 2.2	Control of Environmental Exposure
Not applicable.	
Frequency and Duration of Use	
Not applicable.	
Environmental factors not influenced by risk management	
Not applicable.	
Other Operational Conditions affecting Environmental Exposure	
Not applicable.	
Technical conditions and measures at process level (source) to prevent release	
Not applicable.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Not applicable.	
Organisational measures to prevent/limit release from site	
Not applicable.	
Conditions and Measures related to municipal sewage treatment plant	
Not applicable.	
Conditions and Measures related to external treatment of waste for disposal	
Not applicable.	
Conditions and measures related to external recovery of waste	
Not applicable.	

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment	
Not applicable.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
Not applicable.	

Section 4.2 -Environment	
Not applicable.	

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version 1.1 Revision Date: 05.10.2023 SDS Number: 800010061720 Date of last issue: 03.10.2023
Print Date 12.10.2023

Exposure Scenario - Worker

300000010080	
SECTION 1	EXPOSURE SCENARIO TITLE
Title	Polymer production- Industrial
Use Descriptor	Sector of Use: SU3, SU10 Process Categories: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC14 Environmental Release Categories: ERC6c
Scope of process	Manufacture of polymers from monomers in continuous and batch processes. Including production, re-cycling and recovery, degassing, discharging, reactor maintenance and immediate polymer product formation (i.e. compounding, pelletisation, product off-gassing).

SECTION 2	OPERATIONAL CONDITIONS AND RISK MANAGEMENT MEASURES
------------------	--

Section 2.1	Control of Worker Exposure
Product Characteristics	
Physical form of product	Gas/liquefied gas
Concentration of the Substance in Mixture/Article	Covers use of substance/product up to 100% (unless stated differently).
Frequency and Duration of Use	
Covers daily exposures up to 8 hours (unless stated differently).	
Other Operational Conditions affecting Exposure	
Assumes a good basic standard of occupational hygiene is implemented.	

Contributing Scenarios	Risk Management Measures
General measures (Flammable gas)	Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the ATEX Directive 2014/34/EU and its subsequent updates. Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level. Use in contained systems. Avoid ignition sources – No smoking. Handle in well-ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment.

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version 1.1 Revision Date: 05.10.2023 SDS Number: 800010061720 Date of last issue: 03.10.2023
Print Date 12.10.2023

	Use non-sparking tools. Comply with relevant EU/national regulations. Review Safety Data Sheet for additional advice.
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Section 2.2	Control of Environmental Exposure
Not applicable.	
Frequency and Duration of Use	
Not applicable.	
Environmental factors not influenced by risk management	
Not applicable.	
Other Operational Conditions affecting Environmental Exposure	
Not applicable.	
Technical conditions and measures at process level (source) to prevent release	
Not applicable.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Not applicable.	
Organisational measures to prevent/limit release from site	
Not applicable.	
Conditions and Measures related to municipal sewage treatment plant	
Not applicable.	
Conditions and Measures related to external treatment of waste for disposal	
Not applicable.	
Conditions and measures related to external recovery of waste	
Not applicable.	

SECTION 3	EXPOSURE ESTIMATION
Section 3.1 - Health	
Risk Management Measures are based on qualitative risk characterisation.	

Section 3.2 -Environment	
Not applicable.	

SECTION 4	GUIDANCE TO CHECK COMPLIANCE WITH THE EXPOSURE SCENARIO
Section 4.1 - Health	
Not applicable.	

Section 4.2 -Environment	
Not applicable.	

SAFETY DATA SHEET

According to EC No 1907/2006 as amended as at the date of this SDS

Propene/Propane Mix

Version
1.1

Revision Date:
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Date of last issue: 03.10.2023
Print Date 12.10.2023
