

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

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

#### 1.1 Product identifier

Trade name : Fuel Gases, Refrigerated, Petrokemian polttokaasu, Jäähdytetty

REACH Registration Number : 01-2119489781-24-XXXX

Substance name : Fuel gas

EC-No. : 270-667-2

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

Use of the Substance/Mixture : Raw material in chemical industry, Manufacture, Distribution, Formulation, Foaming (blowing) agents, Use in functional fluids, Fuel, Use in polymer production, Use in polymer processing

#### 1.3 Details of the supplier of the safety data sheet

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

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

E-mail address : [sds@borealisgroup.com](mailto:sds@borealisgroup.com)

#### 1.4 Emergency telephone number

+358 9 39493416 Shift supervisor, Olefins (24h)  
+358 10 4582267 Fire department, Kilpilahti industrial area (24h)

### 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.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

Gases under pressure, Refrigerated  
liquefied gas

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

### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word :

Danger

Hazard statements :

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

Precautionary statements :

**Prevention:**

P210 Keep away from heat, hot surfaces, sparks, open  
flames and other ignition sources. No smoking.  
P282 Wear cold insulating gloves and either face shield or  
eye protection.

**Response:**

P336 + P315 Thaw frosted parts with lukewarm water. Do  
not rub affected area. Get immediate medical advice.  
P377 Leaking gas fire: Do not extinguish, unless leak can be  
stopped safely.  
P381 In case of leakage, eliminate all ignition sources.

**Storage:**

P403 Store in a well-ventilated place.

### 2.3 Other hazards

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

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

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

Rapid evaporation of the product may cause frostbite.  
Vapours may form explosive mixtures with air.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

Substance name : Fuel gas

EC-No. : 270-667-2

Chemical nature : A combination of light gases. It consists predominantly of hydrogen and/or low molecular weight hydrocarbons.

#### Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)	M-Factor, SCL, ATE
Substance of unknown or variable composition, complex reaction products or biological material (UVCB) :			
Fuel gases; Petroleum gas	68476-26-6 270-667-2	<= 100	
Contains :			
methane	74-82-8 200-812-7	> 70 - < 80	
hydrogen	1333-74-0 215-605-7	> 20 - < 25	
nitrogen	7727-37-9 231-783-9	>= 1 - <= 5	

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

If inhaled : Move to fresh air.  
Do not leave the victim unattended.  
Keep patient warm and at rest.  
If unconscious, place in recovery position and seek medical advice.  
If breathing is difficult, give oxygen.

In case of skin contact : Wash frost-bitten areas with plenty of water. Do not remove clothing.  
Seek medical advice immediately.  
Do not rub affected area.

In case of eye contact : Remove contact lenses.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

Rinse immediately with plenty of water for at least 15 minutes.  
Keep eye wide open while rinsing.  
If eye irritation persists, consult a specialist.

If swallowed : Not probable:  
The product evaporates readily.

### 4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Inhalation may provoke the following symptoms:  
Drowsiness  
Suffocation  
Skin contact may provoke the following symptoms:  
Frostbite

### 4.3 Indication of any immediate medical attention and special treatment needed

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

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## 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 : Incomplete combustion may produce:  
Carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), dense black smoke.  
Flash back possible over considerable distance.  
Vapours may form explosive mixtures with air.  
Do not allow run-off from fire fighting to enter drains or water courses.  
Risk of explosion.

### 5.3 Advice for firefighters

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

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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

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

#### 6.2 Environmental precautions

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

#### 6.3 Methods and material for containment and cleaning up

Allow to evaporate.  
Ensure adequate ventilation, especially in confined areas.

#### 6.4 Reference to other sections

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

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Advice on safe handling : Refill and handle product only in closed system.  
Prevent leaks by checking valves, pipelines and joints regularly.  
Ensure adequate ventilation.  
Avoid and prevent all spillage, contact and exposure.

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 containers tightly closed in a cool, well-ventilated place.  
Keep product and empty container away from heat and sources of ignition. Containers which are opened must be

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

carefully resealed and kept upright to prevent leakage. No smoking.

Advice on common storage : Keep away from incompatible materials. See chapter 10.

### 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

#### Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
methane	74-82-8	HTP-arvot 8h	1.000 ppm	FI OEL
		HTP-arvot 8h	1.000 ppm	FI OEL
Further information	Oxygen Depleting Substances			

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

Substance name	End Use	Exposure routes	Potential health effects	Value
Fuel Gases, Refrigerated				
Remarks:	Not applicable			

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

Substance name	Environmental Compartment	Value
Fuel Gases, Refrigerated		
Remarks:	Not applicable	

### 8.2 Exposure controls

#### Personal protective equipment

Eye protection : Tightly fitting safety goggles  
Face-shield  
Equipment should conform to EN 166

Hand protection

Remarks : Cold-insulating gloves (e.g. nitrile rubber).

Skin and body protection : Wear suitable protective clothing and rubber boots.

Respiratory protection : In case of insufficient ventilation: Self-contained breathing apparatus.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

Vapours can cause suffocation by reducing oxygen available for breathing.

### Environmental exposure controls

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

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state : Refrigerated liquefied gas

Colour : colourless

Odour : odourless

Odour Threshold : No data available

Melting point/range : -259 - -183 °C

Flammability : Extremely flammable.

Upper explosion limit / Upper flammability limit : Upper flammability limit  
15 %(V)  
methane

Upper explosion limit  
75 %(V)  
hydrogen

Lower explosion limit / Lower flammability limit : Lower flammability limit  
5 %(V)  
methane

Lower flammability limit  
4 %(V)  
hydrogen

Flash point : No data available

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

pH : No data available

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

Viscosity  
Viscosity, dynamic : No data available

Viscosity, kinematic : No data available

### Solubility(ies)

Water solubility : > 1 g/l

Solubility in other solvents : No data available

Vapour pressure : No data available

Relative density : No data available

Relative vapour density : 0,6  
methane  
0,07  
hydrogen

### Particle characteristics

Particle Size Distribution : Not applicable

## 9.2 Other information

Explosives : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Self-ignition : > 537 °C

Evaporation rate : No data available

Surface tension : Not applicable

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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.

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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

### 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 : Reacts violently with:  
Strong oxidizing agents

### 10.6 Hazardous decomposition products

None.

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## 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:

##### methane:

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

Acute inhalation toxicity : LC50: > 20 mg/l  
Remarks: Acute toxicity:  
low.

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

#### Skin corrosion/irritation

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

#### Components:

##### methane:

Result : No skin irritation  
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.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

### Components:

#### methane:

Result	:	No eye irritation
Remarks	:	Contact with liquid or refrigerated gas can cause cold burns and frostbite.

### 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.

### Components:

#### methane:

Remarks	:	study technically not feasible (gaseous)
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### Germ cell mutagenicity

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

### Components:

#### methane:

Genotoxicity in vitro	:	Test Type: Microbial mutagenesis assay (Ames test) Method: OECD Test Guideline 471 Result: negative Remarks: In vitro tests did not show mutagenic effects
Genotoxicity in vivo	:	Remarks: No data available

### Carcinogenicity

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

### Components:

#### methane:

Remarks	:	This information is not available.
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### Reproductive toxicity

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

### Components:

#### methane:

Effects on fertility	:	Remarks: This information is not available.
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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

### STOT - single exposure

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

#### Components:

##### **methane:**

Remarks : study scientifically unjustified (gaseous)

### STOT - repeated exposure

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

#### Components:

##### **methane:**

Exposure routes : Inhalation  
Remarks : study scientifically unjustified (gaseous)

Exposure routes : Ingestion  
Remarks : study scientifically unjustified (gaseous)

Exposure routes : Skin contact  
Remarks : study scientifically unjustified (gaseous)

### Aspiration toxicity

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

#### Product:

No data available

## 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 : Health injuries are not known or expected under normal use.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

### SECTION 12: Ecological information

#### 12.1 Toxicity

##### Components:

##### **methane:**

Toxicity to fish	:	147,54 mg/l Exposure time: 96 h Test Type: Short term Method: QSAR
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia (water flea)): 69,43 mg/l Exposure time: 48 h Test Type: Short term Method: QSAR
Toxicity to algae/aquatic plants	:	12,32 mg/l Exposure time: 96 h Method: QSAR
Toxicity to microorganisms	:	Remarks: No data available
Toxicity to fish (Chronic toxicity)	:	7,66 mg/l Exposure time: 30 d Method: QSAR Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	3,886 mg/l Exposure time: 30 d Method: QSAR Remarks: No data available

#### 12.2 Persistence and degradability

##### Product:

Biodegradability	:	Method: QSAR Remarks: Readily biodegradable.
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##### Components:

##### **methane:**

Biodegradability	:	Water Method: QSAR Remarks: Readily biodegradable.
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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

### 12.3 Bioaccumulative potential

#### Components:

##### **methane:**

Bioaccumulation : Bioconcentration factor (BCF): 1,38  
Remarks: Bioaccumulation not expected: Partition coefficient (n-octanol/water) log Kow < 3.

Partition coefficient: n-octanol/water : log Pow: 1,09 (20 °C)

### 12.4 Mobility in soil

#### Product:

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

#### Components:

##### **methane:**

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

### 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:

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

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

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### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

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

Contaminated packaging : Dispose of in accordance with local regulations.

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### SECTION 14: Transport information

#### 14.1 UN number or ID number

ADR : UN 1972

IMDG : UN 1972

#### 14.2 UN proper shipping name

ADR : NATURAL GAS, REFRIGERATED LIQUID (methane, hydrogen)

IMDG : NATURAL GAS, REFRIGERATED LIQUID (methane, hydrogen)

#### 14.3 Transport hazard class(es)

ADR : 2

IMDG : 2.1

#### 14.4 Packing group

**ADR**  
Packing group : Not assigned by regulation  
Classification Code : 3F  
Hazard Identification Number : 223  
Labels : 2.1  
Tunnel restriction code : (B/D)

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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

### 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
15	Hydrogen	5 t	50 t

#### Other regulations:

No data available

### 15.2 Chemical safety assessment

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

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## SECTION 16: Other information

### Full text of other abbreviations

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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

## Fuel Gases, Refrigerated

Version 3.0

Revision Date: 11.08.2022

Former date: 16.04.2012

FI OEL : Finland. HTP Values - Concentrations Known to be Harmful  
FI OEL / HTP-arvot 8h : Long term exposure limit

### 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, Methane, February 2000 (<http://www.inchem.org/documents/icsc/icsc/eics0291.htm>)  
International Chemical Safety Card, Hydrogen, April 2014 (<http://www.inchem.org/documents/icsc/icsc/eics0001.htm>)  
Chemical Safety Report, Other Petroleum Gases. Lower Olefins and Aromatics REACH Consortium, 2021

### Disclaimer

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