

Liquefied Biogas

## SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND THE COMPANY	
<b>1.1</b>	<b>Product identifier</b>
	<b>Substance name</b> LBG – Liquefied Biogas
	<b>CAS-no</b> 74-82-8
	<b>Product code</b> Methane
	<b>Reach registration number</b> N/A; Methane is exempted from REACH registration (Annex V)
<b>1.2</b>	<b>Relevant identified uses of the substance or mixture and uses advised against</b>
	<b>Relevant identified uses</b> Industrial and professional. Fuel. Engine fuel. Raw material for chemical industry. Liquefied biogas (LBG)
<b>1.3</b>	<b>Details of the Supplier of the Safety Data Sheet</b>
	<b>Manufacturer, importer or other trader</b>
	<b>Name of company</b> Gasum Oy
	<b>Street address</b> Revontulenpuisto 2 C
	<b>Postcode and place</b> 02100 ESPOO
	<b>P.O. Box</b> P.O. Box 21
	<b>Postcode and place</b> 02151 ESPOO
	<b>Telephone number</b> 0800 122 722
	<b>E-mail address</b> asiakaspalvelu@gasum.com
	<b>Business ID</b> 0969819-3
<b>1.4</b>	<b>Emergency number</b>

Poison Information Centre:  
Norway: +47 22 59 13 00  
Sweden: 010-456 6700  
Finland: 09 471 977

SECTION 2. HAZARDS IDENTIFICATION	
<b>2.1</b>	<b>Classification of the substance or mixture</b>

### EY (No) 1272/2008 CLP classification:

Flammable gas      Category1  
Gass under pressure    Refrigerated liquefied gas

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

## 2.2 Label elements

Hazard pictograms:



GHS02, GHS04  
Signal word: Danger

### Hazard statements:

Flam. Gas 1	H220: Extremely flammable gas
Press. Gas	H280: Contains gas under pressure; may explode if heated
	H281: Contains refrigerated gas; may cause cryogenic burns or injury

### Precautionary statements:

#### Precaution

P210	Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P243	Take precautionary measures against static discharge
P282	Wear cold insulating gloves /face shield/eye protection

#### Response:

P315	Get immediate medical advice/attention.
P377	Leaking gas fire: Do not extinguish unless leak can be stopped safely
P381	Eliminate all ignition sources if safe to do so.

#### 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.

Contains at least 85 mol-% of methane, may be odorized.

Liquefied Biogas

**Health hazards:** Extremely flammable. In high concentrations the gas may cause slight dizziness and have an anaesthetic effect. In even higher concentrations, reduced consciousness and asphyxiation may result due to oxygen displacement.  
LBG may cause severe freezing injuries on skin or on eyes.

**Safety hazards:** Methane is lighter than air and together with air forms a flammable/explosive mixture of air and gas.

**Environmental hazards:** The product is not classified as harmful for the environment.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS			
3.2 Substances			
Substance name	CAS-, EY- number and Reg. No.	Classification	Content
Methane	74-82-8 200-812-7 601-001-00-4	H220: Extremely flammable gas H280: Contains gas under pressure; may explode if heated H281: Contains refrigerated gas; may cause cryogenic burns or injury	c. 100 %

The content of the substance in this section is used for classification only, and does not represent the actual purity of the substance as supplied, for which other documentation should be consulted.

For explanation of abbreviations see section 16.

SECTION 4. FIRST AID MEASURES	
4.1 Description of first aid measures	

**General:** Contact a physician in case of discomfort, irritation or other persistent symptoms

**Inhalation:** Remove the patient from the source of exposure. Fresh air or artificial resuscitation if needed/ supply oxygen. Contact a physician.

**Skin contact:**

- Call for an ambulance – the injured needs treatment at hospital
- Cryogenic injuries must NOT be treated on site
- Cryogenic injuries must be handled very carefully
- Protect the frozen area against pressure and impact by covering / wrapping the injured area
- Do not touch the body part that has the cryogenic injury
- Make sure to keep the injured person still until help arrives
- Do NOT massage the injured body part
- Do NOT use water or burn gel on the injured body part

**Eye contact:** Rinse with ample water while lifting the eyelid. Continue rinsing for several minutes. Keep flushing until the patient gets medical attention. Contact a physician.

**Ingestion:** Ingestion is not considered a potential route of exposure

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

### Information to health personnel:

Symptomatic treatment. The gas may cause slight dizziness and have an anaesthetic effect in high concentrations. In even higher concentrations, reduced consciousness and asphyxiation may occur due to displacement of oxygen from the air. Narcotic effect in low concentrations. Symptoms may be dizziness, headache, indisposition and poor concentration. Cryogenic injuries may occur.

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

Medical measures according to symptoms. Give oxygen or mouth-to-mouth ventilation, if necessary.

## SECTION 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

**Suitable fire extinguishing media:** Powder. Foam is less effective

**Unsuitable extinguishing media:** DO NOT use water. CO<sub>2</sub>

### 5.2 Special hazards arising from the substance or mixture

#### Fire and explosion hazards

Extremely flammable. The gas is heavier than air at a temperature lower than minus 107°C. At temperatures higher than minus 107°C, the gas is lighter than air. If water is used on an LBG pool fire, the situation will escalate dramatically. Evaporation will increase 40-fold and the heat radiation will be extremely high.

### 5.3 Advice for firefighters

#### Personal protective equipment

All remedial measures must be situational. Stop at a safe distance, min 100 m from the accident site. Check the situation – gas leak, non-ignited liquids, fire in gas phase/liquid phase. Wind direction: attack with the wind from behind. Do not use water on liquid leaks and/or fire. Extinguish the fire with powder if available. If possible, shut off escaping gas/liquid.

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

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

#### Safety measures to protect personnel

Wear personal protective equipment as described in Section 8 of this safety data sheet. Remove all sources of ignition. Avoid sparks and open flame. Evacuate the area in case of potential explosive gas atmosphere. Shut off the gas if possible without risking own safety.

### 6.2 Environmental precautions

#### Safety measures to protect the environment

Prevent spreading over wide areas. Shut off the gas if possible without risking own safety.

### 6.3 Methods and material for containment and clean-up

#### Tidying and cleaning methods

The liquid phase will quickly evaporate and there will be no permanent pollution. Provide adequate ventilation.

## 6.4 Reference to other sections

For personal protection, see section 8.

## SECTION 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

#### Handling:

- LBG equipment shall be operated by trained and skilled personnel
- Work on LBG equipment shall only be carried out by trained and skilled personnel
- Personal protective equipment shall be used
- Smoking and use of open flame is prohibited
- Non- Ex-classified equipment must not be used in classified areas
- Mobile telephones must not be used near LBG equipment
- LBG equipment must not be touched without safety gloves
- Water and eye wash cups shall be accessible
- Extinguishing equipment shall be easily accessible

### 7.2 Conditions for safe storage, including incompatibilities

Only facilities built according to current standard, recommendations and authority approval must be used for storage.

### 7.3 Specific end use(s)

The identified uses for this product are detailed in Section 1.2.

Odorization: Vaporising LBG to be used for heating, process heating etc. shall have an odorization agent added. This is to ensure that a gas leak is detected at the earliest possible stage.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Occupational Exposure Limits

None of the components have assigned exposure limits.

### 8.2 Exposure controls

#### Appropriate engineering controls

Gas detection must be in place wherever a gas atmosphere can be expected to occur.

Make sure the room is sufficiently ventilated when handling the product.

#### Skin protection

Wear fire resistant or flame retardant clothing. Wear appropriate clothing to prevent skin contamination or freezing.

#### Hand protection

Use cold-resistant gloves when handling a liquefied product.

#### Respiratory protection

If the ventilation is insufficient, use respiratory protection according to standard EN 136/140

#### Eye and face protection:

Use eye protection/face shield if contact is likely. Eye protection according to standard EN 166.

#### Environmental exposure controls

No specific need.

Liquefied Biogas

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

<b>Physical state:</b>	Liquefied gas
<b>Colour:</b>	Colourless
<b>Odour:</b>	Odourless
<b>Boiling point:</b>	-162°C
<b>Flash point:</b>	- 188 °C (methane)
<b>Auto-ignition temperature:</b>	+580°C
<b>Explosive limit:</b>	5 – 15 vol% in air
<b>Relative density:</b>	450 kg/m <sup>3</sup>
<b>Description of solubility:</b>	Low solubility in water

### 9.2 Other information - Other physical and chemical properties

N/A

## SECTION 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No reactivity hazard beyond those described in items 10.2 to 10.6..

### 10.2 Chemical stability

Stable during normal use and normal conditions.

### 10.3 Possibility of hazardous reactions

No hazardous reactions

### 10.4 Conditions to avoid

Danger of ignition; Keep away from heat/sparks/open flames/hot surfaces – no smoking.

### 10.5 Incompatible materials

- Avoid contact with highly oxidising agents
- Air

### 10.6 Hazardous decomposition products

Carbon monoxide

Liquefied Biogas

## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

No Known effects

### 11.2 Information on other hazards

Endocrine disrupting properties:

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

### 11.3 Potential acute effects

Inhalation:	No known effects
Skin contact:	Liquid or cold gas may cause severe freezing injuries
Eye contact:	Splash of liquid or cold gas may cause severe freezing injuries

## SECTION 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Adverse effects to the aquatic environment and the environment is not expected

### 12.2 Persistence and degradability

No data found

### 12.3 Bioaccumulative potential

No data found

### 12.4 Mobility in soil

Liquefied product evaporates quickly into the air, where its degradability is extremely slow.

### 12.5 Results of PBT and vPvB assessment

Not classified as PBT or vPvB

### 12.6 Endocrine disrupting properties

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

Can cause frost damage to vegetation  
Global warming potential Methane = 25

## SECTION 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

N/A

## SECTION 14. TRANSPORT INFORMATION

### 14.1 UN number

ADR	1972
RID	1972
IMDG	1972
ICAO/IATA	1972

### 14.2 UN proper shipping name

ADR	Methane, refrigerated liquid
RID	Methane, refrigerated liquid
IMDG	Methane, refrigerated liquid
ICAO/IATA	Methane, refrigerated liquid

Liquefied Biogas

<b>14.3</b>	<b>Transport hazard class</b>
ADR	2.1
Hazard no.	223
RID	2.1
ICAO/IATA	2.1

<b>14.4</b>	<b>Packing group</b>
N/A	

<b>14.5</b>	<b>Environmental hazards</b>
None	

<b>14.6</b>	<b>Special precautions for user</b>
EmS: F-D, S-U	

<b>14.7</b>	<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>
No specific statements.	

<b>SECTION 15. REGULATORY INFORMATION</b>	
<b>15.1</b>	<b>Safety, health and environmental regulations/legislation specific for the substance or mixture</b>

**References (regulations/legislation):**

- Regulation on classification, labelling etc. of chemicals (CLP)
- ADR/RID road and rail transport of dangerous goods
- IMO dangerous goods, sea transport
- ICAO dangerous goods, air transport
- Regulations on hazardous waste
- Seveso III directive: P2 flammable gases

**Declarations : 53374**

Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work Directive 89/686/EEC on personal protective equipment Directive 94/9/EC on equipment and protective systems intended for use in potentially explosive atmospheres (ATEX) Only products that comply with the food regulations (EC) No. 1333/2008 and (EU) No. 231/2012 and are labelled as such may be used as food additives.

This Safety Data Sheet has been produced to comply with Regulation (EU) 2015/830.

<b>15.2</b>	<b>Chemical Safety Assessment</b>
N/A	



## SECTION 16. OTHER INFORMATION

<b>Changes to the previous version</b>	Updated according to changes of the REACH regulation ((EC) 1907/2006) in Annex II related to safety data sheets ((EU) 2020/878)
<b>The supplier's notes</b>	This Safety Data Sheet shall be made accessible to those who handle the product
<b>Classification according to CLP(EC) NO 1272/2008(CLP/GHS)</b>	Flam. gas 2; H220; on the basis of test data
<b>List of relevant H phrases (in sections 2 and 3)</b>	H220 Extremely flammable H280 Contains gas under pressure; may explode if heated H281 Contains refrigerated gas; may cause cryogenic burns or injury
<b>Abbreviations:</b> <b>PBT</b> <b>vPvB</b>	Persistent, bioaccumulative and toxic Very persistent and very bioaccumulative
<b>Supplementary information</b>	The Safety Data Sheet are designed in 16 points according to approved EU standard
<b>Quality assurance of the information</b>	This Safety Data Sheet is quality assured by Gasum OY, which is certified according to NS-EN 9001:2015 and NS-EN 14001:2015
<b>Responsible for Safety Data Sheet</b>	Gasum OY