

SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier	
Substance name	Biogas (CBG compressed biogas)
CAS-no	74-82-8
Identification code	Methane
Reach registration number	N/A; Methane is exempted from REACH registration (Annex V)

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

Relevant identified uses	Fuel. Engine fuel. Raw material for chemical industry. Pressurized biogas, biomethane. May also be called CBG Compressed biogas, when P > 55 bar.
NACE code	D35 Electricity, gas, steam and air conditioning supply C20 Manufacture of chemicals and chemical products
Purpose of use code	55 Other chemicals
This chemical may be used for common consumption	X
This chemical is only used for common consumption	This chemical is not used for common consumption.

1.3 Details of the Supplier of the Safety Data Sheet

Manufacturer, importer or other trader	
Trader acting in Finland	Gasum Oy
Street address	Revontulenpuisto 2 C
Postcode and place	02100 ESPOO
P.O. Box	P.O. Box 21
Postcode and place	02151 ESPOO
Telephone number	0800 122 722
E-mail address	asiakaspalvelu@gasum.com
Business ID	0969819-3

1.4 Emergency number

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

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

EY (No) 1272/2008 CLP classification:

Flam. Gas 1 H220	Extremely flammable gas
Press. Gas (Comp.) H280	Contains gas under pressure; may explode if heated.

2.2 Label elements

Hazard pictograms:



GHS02, GHS04
Signal word: Danger

Hazard statements:

Flam. Gas 1 H220	Extremely flammable gas
Press. Gas (Comp.) H280	Contains gas under pressure; may explode if heated.

Precautionary statements:

Precaution

P210	Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
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Response precautionary statement:

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.
P410 + P403	Protect from sunlight. Store in a well-ventilated place.

2.3 Other hazards

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

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

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

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

Safety hazards:

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

Health hazards:

In high concentrations, the inhalation of methane may cause drowsiness and possibly headache, nausea or dizziness. High concentrations of gas can displace oxygen in the air. This results in a lack of oxygen, which may cause suffocation if prolonged. If it evaporates quickly, pressurized natural gas may cause freezing injuries.

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 %

For explanation of abbreviations see section 16.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

Inhalation:

A person who has inhaled gas shall be moved to fresh air, kept warm and at rest. Give oxygen or mouth-to-mouth ventilation, if necessary. If the exposure has been remarkable, seek medical attention.

Swallowed:

The substance is a gas and swallowing it is not a likely way to be exposed.

Skin contact:

Warm up the skin immediately by flushing with plenty of water. If the exposure has been remarkable, seek medical attention.

Eye contact:

Flush immediately with plenty of water for at least 15 minutes. Keep flushing until the patient gets medical attention (an eye specialist is preferred).

4.2 Most important symptoms and effects, both acute and delayed

In high concentrations, breathing of methane may cause drowsiness, possibly headache, nausea or dizziness. High concentrations of gas can displace oxygen in the air. This results in a lack of oxygen, which may cause suffocation, if prolonged.

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

Leave fire-fighting measures to professional fire-fighters. Call the common emergency number 112. Turn off the check valve(s) on the natural gas pipe that leads to the leakage if safe to do so.

5.2 Special hazards arising from the substance or mixture

Together with air, methane forms a flammable/explosive mixture. It poses the danger of explosion when the gas accumulates in closed spaces. There is the danger of explosion when the pressure rises if the gas pipework increases in heat due to fire.

5.3 Advice for firefighters

Protective equipment: complete protective clothing and self-contained breathing apparatus.

Stop access to leakage by turning off the check valve(s) on the natural gas pipe that leads to the leakage if safe to do so. If this valve cannot be turned off and the fire does not pose a danger to the surroundings, let the fire burn out on its own. Use water spray from a safe distance to cool nearby gas pipework and devices.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

If possible, turn off the check valve(s) on the gas pipe that leads to the leakage.

Eliminate the danger of fire and explosion by isolating the area from ignition sources (e.g. heat, sparks, open fire, hot surfaces) and by inhibiting the accumulation of gas in closed spaces.

Evacuate people from the dangerous area to a spot above wind. It may be possible to control the evaporation of the gas with water sprays, if necessary. Monitor the dangerous area with gas detectors.

In case of an accident, a notice shall immediately be given to the emergency centre: general emergency number 112. Suitable protective equipment must be worn during all measures.

6.2 Environmental precautions

No particular safety measures

6.3 Methods and material for containment and clean-up

Controlled evaporation or incineration. The danger posed by fire and explosion as well as health risk should be observed. The space needs to be ventilated well.

6.4 Reference to other sections

Mentioned in section 7, 8.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Protect from heat, sunlight, hot surfaces, sparks, open fire and other ignition sources. No smoking. Keep isolated from ignition sources. Use protective measures (e.g. ground connections) to inhibit sparking due to induced electricity. Make sure the room is sufficiently ventilated when handling the product. Make sure there are no leakages due to open valves or leaking junctions.

7.2 Conditions for safe storage, including incompatibilities

Use special containers or pipework suitable for extremely flammable gases (natural gas). Protect from heat, sunlight, hot surfaces, sparks, open fire and other ignition sources. No smoking. Keep isolated from ignition sources. No smoking. Keep isolated from ignition sources. Use protective measures (e.g. ground connections) to inhibit sparking due to induced electricity. Adequate ventilation should be provided. Before conducting any cleaning, inspection or other service and maintenance procedures, make sure this is safe.

7.3 Specific end use(s)

No specific end use.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

HTP-values

No value determined (CAS 8006-14-2) according to decree 1214/2016 by Ministry of Social affairs and Health

Other limit values

N/D

DNEL-values

N/D

PNEC-values

N/D

8.2 Exposure controls

Appropriate engineering controls

Make sure the room is sufficiently ventilated when handling the product. Specific instructions need to be followed when cleaning the containers and pipework (risk of displacement of oxygen). Choose control measures on the basis of risk assessment with consideration also given to the local conditions.

Biogas

Eye/face protection

If necessary, a face shield and safety goggles that fit tightly.

Skin protection

No specific need. If necessary, use anti-static and fire retardant clothing.

Hand protection

Use cold-resistant gloves when handling a liquefied product.

Respiratory protection

Use pressure pneumatic appliance

Thermal dangers

Use cold-resistant gloves when handling a liquefied product.

Environmental exposure controls

No specific need.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Colourless gas
Odour	Weak hydrocarbon odour
Odour threshold	N/D
pH	N/D
Melting point / freezing point	- 182 °C (methane) (Melting point)
Initial boiling point and boiling range	- 162 °C (methane)
Flash point	- 188 °C (methane)
Evaporation rate	N/D
Flammability (solid, gas)	N/D
Lower and upper explosive limit	Lower: 5 til-% (flammability limit) Upper: 15 til-% (flammability limit)
Vapour pressure	c. 150 kPa (20 °C) (water = 2,3 kPa)
Vapour density	N/D
Relative density	0,56 (air = 1)
Solubility(ies)	Water solubility: poorly soluble (24 mg/l, methane) Liposolubility (oil solvent, individualized): N/A
Partition coefficient: n-octanol/water	N/D
Auto-ignition temperature	537 °C (methane)
Decomposition temperature	N/D
Viscosity	N/D
Explosive properties	Methane together with air forms a flammable/explosive mixture of air and gas. May explode if heated.
Oxidising properties	N/D

9.2 Other information

Density of gas = 0,73 kg/m³

Density of liquid at boiling temperature:: 0,42 kg/l (methane)

Henry's law constant = 0,6 atm·m³/mol 1 ppm = 0,67 mg/m³ (methane), 1 mg/m³ = 1,50 ppm (methane).

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

Not self-reactive.

10.2 Chemical stability

Stable under normal conditions

10.3 Possibility of hazardous reactions

No hazardous reactions

Biogas

10.4 Conditions to avoid

Danger of ignition; avoid heat, sparks, sunlight and ignition sources. May form flammable mixtures together with air.

10.5 Incompatible materials

Water (may form solid hydrates under high pressure and at low temperature)

10.6 Hazardous decomposition products

Carbon monoxide

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

N/D

Skin corrosion/irritation

The gas does not irritate skin.

Serious eye damage/irritation

The gas does not irritate eyes.

Airways or skin sensitisation

The gas does not irritate airways or skin.

Germ cell mutagenicity

N/D

Carcinogenicity

N/D

Reproductive toxicity

N/D

Specific target organ toxicity (STOT- single or repeated exposure)

Large amounts of steam may cause unconsciousness. When the liquid evaporates quickly, it can cause freezing injuries. Product ingredients may be absorbed in the body when aspirated.

Aspiration hazard

N/D

Other information

No other information concerning toxicity.

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

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic toxicity: Gaseous substance which dissolves sparsely to water.

Toxicity to other organisms: N/D

12.2 Persistence and degradability

Extremely slow degradability by atmospheric chemistry (estimated half-life of methane is 220 days)

12.3 Bioaccumulative potential

N/D

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

Biogas

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

N/D

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Incineration requires special treatment in accordance with the local regulations, due to the high pressure of the compressed gas.

SECTION 14. TRANSPORT INFORMATION

14.1 UN number

UN 1971

14.2 UN proper shipping name

UN 1971 NATURAL GAS, COMPRESSED, with high methane content

14.3 Transport hazard class

Land transports

Transport class: 2

Danger identification number: 23

ADR/RID hazardous material label 2.1

Sea transport

IMDG class: 2.1

Air transport

Not transported by air

14.4 Packing group

N/A

14.5 Environmental hazards

No specific environmental hazards

14.6 Special precautions for user

Mentioned in section 7 – 8

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No specific statements.

SECTION 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Exhaustive legislation for natural gas pipework and gas appliances has been drawn up in Finland. The most central of all regulations is the government decree on the safe handling of natural gas (551/2009), which is based on the Act on Safe Handling and Storage of Dangerous Chemicals and Explosives (390/2005).

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.

Seveso III-directive (2012/18/EU) applies to natural gas.

15.2 Chemical Safety Assessment

A chemical safety assessment has not been performed.

SECTION 16. OTHER INFORMATION

Changes to the previous version

Updated according to changes of the REACH regulation ((EC) 1907/2006) in Annex II related to safety data sheets ((EU) 2020/878)

Explanations of abbreviations

DNEL	The derived no-effect level
HTP	Harmful known concentrations
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
vPvB	Very persistent and very bioaccumulative

Sources of data

Gasum Natural gas/Biogas Safety data sheet revised 13.6.2012.

Classification and procedure used to derive the classification for mixtures

CLP-regulation (EY N:o 1272/2008).

List of R and S statements or/and danger and hazard statements

Hazard statements

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

Precautionary statements

P210	Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.
P403	Store in a well-ventilated place.
P410 + P403	Protect from sunlight. Store in a well-ventilated place.

Training advice

Review sections 4 – 8 and show the location of necessary safety devices.

Updated 14.4