

LBG, Liquide methane gas, Liquid biogas

Country : SE / Language : EN

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

1.1. Product identifier

Trade name : LBG, Liquide methane gas, Liquid biogas

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

Relevant identified uses : Industrial and professional. Perform risk assessment prior to use.
Contact supplier for more information on uses.
Condensed, liquid gas for fuel purposes.

Uses advised against : Consumer use.

1.3. Details of the supplier of the safety data sheet

Company identification

FordonsGas Sverige AB
Anders Personsgatan 14
416 64 Göteborg
T 031 63 45 30
eunordic-sds@airliquide.com

E-Mail address (competent person) : eunordic-sds@airliquide.com

1.4. Emergency telephone number

Emergency telephone number : 112 (Sweden)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

- : H220 – Extremely flammable gas, category 1
- : H280 – Contains gas under pressure; may explode if heated.
- : H281 – Contains refrigerated gas; may cause cryogenic burns or injury.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]



GHS Pictogram (CLP)

: GHS02 GHS04

Signal word (CLP)

: Danger

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Hazard statement (CLP) : H220 – Extremely flammable gas, category 1
 : H280 – Contains gas under pressure; may explode if heated
 : H281 – Contains refrigerated gas; may cause cryogenic burns or injury

Precautionary statements (CLP)

prevention : P282 – Wear cold insulating gloves and either face shield or eye protection.
 : P243 - Take action to prevent static discharges.
 : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
 No smoking

response : P315+P336 - Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.
 : 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

Extremely flammable. In high concentrations, the gas can cause slight dizziness and have a drowsy effect. In even higher concentrations, it may cause decreased consciousness and suffocation due to lack of oxygen. LBG can cause severe skin or eye freeze damage.

At temperatures higher than -107 ° C LBG is lighter than air and together with air a flammable / explosive mixture of air and gas is formed.

SECTION 3: Composition/information on ingredients

3.1. Substances : Not established.

3.2. Mixtures

Name	Product identifier	Composition [V-%]:	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Methane (refrigerated)	(CAS-No.) 74-82-8 (EC-No.) 200-812-7 (EC Index-No.) 601-001-00-4 (REACH-no) 01-2119474442-39	98.5 - 99.1	Flam. Gas 1, H220 Press. Gas (Ref. Liq.), H281
Nitrogen (refrigerated)	(CAS-No.) 7727-37-9 (EC-No.) 231-783-9 (EC Index-No.) (REACH-no) *1	0.8 - 1.2	Press. Gas (Ref. Liq.), H281
Oxygen (refrigerated)	(CAS-No.) 7782-44-7 (EC-No.) 231-956-9 (EC Index-No.) 008-001-00-8 (REACH-no) *1	0.1 - 0.3	Ox. Gas 1, H270 Press. Gas (Ref. Liq.), H281

Full text of H-statements: see section 16

Contains no other components or impurities which will influence the classification of the product.

*1: Listed in Annex IV / V REACH, exempted from registration.

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*2: Registration deadline not expired.

*3: Registration not required: Substance manufactured or imported < 1t/y.

SECTION 4: First aid measures

4.1. Description of first aid measures

- Inhalation : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped.
- Skin contact : In case of frostbites: Get medical advice/attention.
- Eye contact : Get medical advice/attention.
- Ingestion : Ingestion is not considered a potential route of exposure.

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

: Refer to section 11.

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

: None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Dry powder.
- Unsuitable extinguishing media : Carbon dioxide.
Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

Specific hazards : Extremely flammable. The gas is heavier than air at temperatures lower than -107 ° C. At temperatures higher than -107 ° C, the gas is lighter than air. If water is used on an LBG fire, the situation will worsen dramatically. The evaporation will increase 40-fold and the heat radiation will be extremely high.

Hazardous combustion products : Carbon monoxide.

5.3. Advice for firefighters

Specific methods : If possible, stop flow of product.
Use water spray or fog to knock down fire fumes if possible.
Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive reignition may occur. Extinguish any other fire.
Move containers away from the fire area if this can be done without risk.
All control measures must be situational. Stay on a safe distance (at least 100 m) from the scene of the accident. Evaluate the situation - gas leak, ignited liquids, fire in gas phase / liquid phase.
Wind direction: fight the fire with the wind in the back. do not use water on liquid leaks and / or fire. Extinguish the fire with powder, if it is available.

Special protective equipment for fire fighters : In confined space use self-contained breathing apparatus.
Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.

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SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

: Try to stop release.
Evacuate area.
Monitor concentration of released product.
Consider the risk of potentially explosive atmospheres.
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Eliminate ignition sources.
Ensure adequate air ventilation.
Act in accordance with local emergency plan.
Stay upwind.

6.2. Environmental precautions

: Try to stop release.

6.3. Methods and material for containment and cleaning up

: Ventilate area.
The liquid phase will evaporate rapidly and there will be no permanent pollution.


6.4. Reference to other sections

: See also sections 8 and 13.

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

Safe use of the product

The product must be handled in accordance with good industrial hygiene and safety procedures.
Only experienced and properly instructed persons should handle gases under pressure.
Consider pressure relief device(s) in gas installations.
Ensure the complete gas system was (or is regularly) checked for leaks before use.
Do not smoke while handling product.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Use only oxygen approved lubricants and oxygen approved sealings that can withstand temperatures of -160° C.
Avoid suck back of water, acid and alkalis.
Assess the risk of potentially explosive atmospheres and the need for explosion-proof equipment.
Purge air from system before introducing gas.
Take precautionary measures against static discharge.
Keep away from ignition sources (including static discharges).
Consider the use of only non-sparking tools.
Do not breathe gas.
Avoid release of product into atmosphere.
Ensure equipment is adequately earthed.
Non-Ex-approved equipment must not be used in classified areas
Mobile phones must not be used near LBG equipment
LBG equipment must not be touched without protective gloves
Water and eye wash equipment should be available
Fire extinguishing equipment should be easily accessible.

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7.2. Conditions for safe storage, including any incompatibilities

: Only plants that have been built in accordance with prevailing standards, recommendations and regulatory approval may be used storage.

7.3. Specific end use(s)

: None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

OEL (Occupational Exposure Limits) : No data available.

DNEL (Derived-No Effect Level) : No data available.

PNEC (Predicted No-Effect Concentration) : No data available.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

- : Provide adequate general and local exhaust ventilation.
- Product to be handled in a closed system.
- Systems under pressure should be regularly checked for leakages.
- Ensure exposure is below occupational exposure limits (where available).
- Gas detectors should be used when flammable gases/vapours may be released.
- Consider the use of a work permit system e.g. for maintenance activities.

8.2.2. Individual protection measures, e.g. personal protective equipment

: A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered
PPE compliant to the recommended EN/ISO standards should be selected.

Eye/face protection

: Wear safety glasses with side shields.
Standard EN 166 - Personal eye-protection - specifications.

Skin protection

: Wear working gloves when handling gas containers.

Hand protection

: Standard EN 388 - Protective gloves against mechanical risk
Standard EN 511 – Protective gloves against cold

Other

: Consider the use of flame resistant anti-static safety clothing.
Standard EN ISO 14116 - Limited flame spread materials.
Standard EN 1149-5 - Protective clothing: Electrostatic properties.
Wear safety shoes while handling containers.
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

Respiratory protection

: Gas filters may be used if all surrounding conditions e.g. type and concentration of the contaminant(s) and duration of use are known.
Use gas filters with full face mask, where exposure limits may be exceeded for a short-term period, e.g. connecting or disconnecting containers.
Gas filters do not protect against oxygen deficiency.
Standard EN 14387 - Gas filter(s), combined filter(s) and standard EN136, full face masks .

• Thermal hazards

: None in addition to the above sections.

8.2.3. Environmental exposure controls

: Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Physical state at 20°C / 101.3kPa	: Liquid.
Colour	: Colourless
Odour	: odourless
Odour threshold	: Odour threshold is subjective and inadequate to warn of overexposure.
pH value	: Not applicable for gases and gas mixtures.
Molar mass	: Not applicable for gas mixtures.
Melting point	: Not applicable for gas mixtures.
Boiling point	: -162 °C
Flash point	: Not applicable for gases and gas mixtures.
Evaporation rate (ether=1)	: Not applicable for gases and gas mixtures.
Flammability range	: Flammability range not available.
Vapour pressure [20°C]	: Not applicable.
Vapour pressure [50°C]	: Not applicable.
Relative density, gas (air=1)	: 450 kg/m ³
Solubility in water	: Solubility in water of component(s) of the mixture : • Methane (refrigerated): 26 mg/l • Oxygen (refrigerated): 39 mg/l • Nitrogen (refrigerated): 20 mg/l
Partition coefficient n-octanol/water [log Kow]	: Not applicable for gas mixtures.
Auto-ignition temperature	: 580 °C Not known.
Decomposition point [°C]	: Not applicable.
Viscosity [20°C]	: No reliable data available.
Explosive Properties	: 5- 15 vol% in air
Oxidising Properties	: Not applicable.

9.2. Other information

Other data : None.

SECTION 10: Stability and reactivity

10.1. Reactivity

: No reactivity hazard other than the effects described in sub-sections below.

10.2. Chemical stability

: Stable under normal conditions.

10.3. Possibility of hazardous reactions

 : Can form explosive mixture with air.
 May react violently with oxidants.

10.4. Conditions to avoid

 : Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
 Avoid moisture in installation systems.

10.5. Incompatible materials

 : Air, Oxidisers.
 For additional information on compatibility refer to ISO 11114.

10.6. Hazardous decomposition products

: Carbon monoxide

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SECTION 11: Toxicological information**11.1. Information on toxicological effects**

Acute toxicity	: Toxicological effects not expected from this product if occupational exposure limit values are not exceeded.
Skin corrosion/irritation	: Liquid or cold gas can cause serious freeze-burns.
Serious eye damage/irritation	: Splashes of liquid or cold gas can cause serious freeze burns.
Respiratory or skin sensitisation	: No known effects from this product.
Germ cell mutagenicity	: No known effects from this product.
Carcinogenicity	: No known effects from this product.
Reproductive toxicity	: No known effects from this product. No known effects from this product.
STOT-single exposure	: No known effects from this product.
STOT-repeated exposure	: No known effects from this product.
Aspiration hazard	: Not applicable for gases and gas mixtures.

SECTION 12: Ecological information**12.1. Toxicity**

Assessment	: Classification criteria are not met.
EC50 48h - Daphnia magna [mg/l]	: No data available.
EC50 72h - Algae [mg/l]	: No data available.
LC50 96 h - Fish [mg/l]	: No data available.

12.2. Persistence and degradability

Assessment	: No data available.
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12.3. Bioaccumulative potential

Assessment	: No data available.
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12.4. Mobility in soil

Assessment	: Because of its high volatility, the product is unlikely to cause ground or water pollution. Partition into soil is unlikely.
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12.5. Results of PBT and vPvB assessment

Assessment	: Not classified as PBT or vPvB.
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12.6. Other adverse effects

Other adverse effects : No known effects from this product.
 Effect on the ozone layer : None.
 Effect on global warming : Contains greenhouse gas(es).

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Contact supplier if guidance is required.
 Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor.
 Do not discharge into any place where its accumulation could be dangerous.
 Ensure that the emission levels from local regulations or operating permits are not exceeded.
 Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.org> for more guidance on suitable disposal methods.
 Return unused product in original cylinder to supplier.

List of hazardous waste codes (from Commission Decision 2000/532/EC as amended)

16 05 04 *: Gases in pressure containers (including halons) containing hazardous substances.

13.2. Additional information

External treatment and disposal of waste should comply with applicable local and/or national regulations.

SECTION 14: Transport information

14.1. UN number

UN-No. : 1972

14.2. UN proper shipping name

Transport by road/rail (ADR/RID) : METHANE, REFRIGERATED LIQUID

Transport by air (ICAO-TI / IATA-DGR) : Methane, refrigerated liquid

Transport by sea (IMDG) : METHANE, REFRIGERATED LIQUID

14.3. Transport hazard class(es)



Labelling

: 2.1 Flammable gases.

Transport by road/rail (ADR/RID)

Class : 2.
 Classification code : 3F.
 Hazard identification number : 223.
 Tunnel Restriction : B/D - Tank carriage : Passage forbidden through tunnels of category B, C, D and E. Other carriage : Passage forbidden through tunnels of category D and E.

Transport by sea (IMDG)

Class / Div. (Sub. risk(s)) : 2.1
 Emergency Schedule (EmS) - Fire : F-D.
 Emergency Schedule (EmS) - Spillage : S-U.

14.4. Packing group

Transport by road/rail (ADR/RID) : P203

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Transport by air (ICAO-TI / IATA-DGR) : P203

Transport by sea (IMDG) : P203

14.5. Environmental hazards

Transport by road/rail (ADR/RID) : None.

Transport by air (ICAO-TI / IATA-DGR) : None.

Transport by sea (IMDG) : None.

14.6. Special precautions for user
Packing Instruction(s)

Transport by road/rail (ADR/RID) : P203.

Transport by air (ICAO-TI / IATA-DGR)

Passenger and Cargo Aircraft : Forbidden.

Cargo Aircraft only : Forbidden.

Transport by sea (IMDG) : P203.

Special transport precautions : Avoid transport on vehicles where the load space is not separated from the driver's compartment.

Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.

Before transporting product containers:

- Ensure there is adequate ventilation.
- Ensure that containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

: Not applicable.

SECTION 15: Regulatory information
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture EU-
Regulations

Restrictions on use : None.

Seveso Directive : 2012/18/EU (Seveso III) : Covered.

National regulations

National legislation : Ensure all national/local regulations are observed.

15.2. Chemical safety assessment

A CSA does not need to be carried out for this product.

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SECTION 16: Other information

- Indication of changes : Revised safety data sheet in accordance with commission regulation (EU) No 453/2010.
- Abbreviations and acronyms : ATE - Acute Toxicity Estimate
 CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
 REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
 EINECS - European Inventory of Existing Commercial Chemical Substances
 CAS# - Chemical Abstract Service number
 PPE - Personal Protection Equipment
 LC50 - Lethal Concentration to 50 % of a test population
 RMM - Risk Management Measures
 PBT - Persistent, Bioaccumulative and Toxic
 vPvB - Very Persistent and Very Bioaccumulative
 STOT- SE : Specific Target Organ Toxicity - Single Exposure
 CSA - Chemical Safety Assessment
 EN - European Standard
 UN - United Nations
 ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
 IATA - International Air Transport Association
 IMDG code - International Maritime Dangerous Goods
 RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
 WGK - Water Hazard Class
- Training advice : Ensure operators understand the flammability hazard.
- Further information : Classification using data from databases maintained by the European Industrial Gases Association (EIGA).
 Classification in accordance with the calculation methods of Regulation (EC) 1272/2008 CLP.

Full text of H- and EUH-statements

Flam. Gas 1	Flammable gases, Category 1
Ox. Gas 1	Oxidising Gases, Category 1
Press. Gas (Ref. Liq.)	Gases under pressure : Refrigerated liquefied gas
H220	Extremely flammable gas
H270	May cause or intensify fire; oxidiser
H281	Contains refrigerated gas; may cause cryogenic burns or injury.

DISCLAIMER OF LIABILITY

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Details given in this document are believed to be correct at the time of going to press.

Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.