

Safety Data Sheet

Liquefied Natural Gas (LNG)

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Reference number: 078B
Revision date: 14/03/2023
Supersedes version of: 10/04/2017
Version: 3.0

Danger



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

1.1. Product identifier

Trade name : Liquefied Natural Gas (LNG)
SDS no : 078B
Other means of identification : Liquefied Natural Gas (LNG)
CAS-No. : 74-82-8
EC-No. : 200-812-7
EC Index-No. : 601-001-00-4

REACH registration No : Listed in Annex IV / V REACH, exempted from registration.

Chemical formula : CH₄

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

Relevant identified uses : Industrial and professional uses. Perform risk assessment prior to use.
Test gas/Calibration gas.
Laboratory use.
Chemical reaction / Synthesis.
Use as a fuel.
Use for manufacture of electronic/photovoltaic components.
Contact supplier for more information on uses.

1.3. Details of the supplier of the safety data sheet

Company identification : SOL SpA
Via G. Borgazzi 27
20900 MONZA - Italia
T +39 039 23.96.1
<http://www.sol.it>
msds@sol.it
E-Mail address (competent person) : msds@sol.it

1.4. Emergency telephone number

Emergency telephone number : Linea verde SET - 800452661 (24h/24h, 365 giorni l'anno); Dall'estero +39 0283421263

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Physical hazards	Flammable gases, Category 1A	H220
	Gases under pressure : Refrigerated liquefied gas	H281

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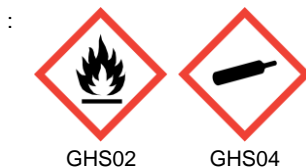
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2.2. Label elements

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

Hazard pictograms (CLP)



Signal word (CLP)

: Danger

Hazard statements (CLP)

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

Precautionary statements (CLP)

- Prevention

: P241 - Use explosion-proof electrical/ventilating/lighting equipment.
P243 - Take precautionary measures against static discharge.
P282 - Wear cold insulating gloves and either face shield or eye protection.
P233 - Keep container tightly closed.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
No smoking.

- Response

: P336+P315 - 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 - Eliminate all ignition sources if safe to do so.

- Storage

: P403 - Store in a well-ventilated place.

2.3. Other hazards

None.

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	%	Product identifier	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Liquefied Natural Gas (LNG)	100	CAS-No.: 74-82-8 EC-No.: 200-812-7 EC Index-No.: 601-001-00-4 REACH registration No: *1	Flam. Gas 1A, H220 Press. Gas (Ref. Liq.), H281

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

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

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

Not applicable

3.2. Mixtures

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 frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.

- Eye contact

: Immediately flush eyes thoroughly with water for at least 15 minutes.

- Ingestion

: Ingestion is not considered a potential route of exposure.

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

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.
In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.

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

None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

5.2. Special hazards arising from the substance or mixture

- Specific hazards : Exposure to fire may cause containers to rupture/explode.
- Hazardous combustion products : Incomplete combustion may form carbon monoxide.

5.3. Advice for firefighters

- Specific methods : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.
Exposure to fire may cause containers to rupture/explode.
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 re-ignition may occur. Extinguish any other fire.
Move containers away from the fire area if this can be done without risk.
- 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.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Try to stop release.
Evacuate area.
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.
Use protective clothing.
Ensure adequate air ventilation.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Act in accordance with local emergency plan.
Stay upwind.

6.2. Environmental precautions

Try to stop release.

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6.3. Methods and material for containment and cleaning up

Ventilate area.
Liquid spillages can cause embrittlement of structural materials.

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.
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.

Safe handling of the gas receptacle

Avoid release of product into work area.
: Refer to supplier's container handling instructions.
Do not allow backfeed into the container.
Never attempt to repair or modify container valves or safety relief devices.
Damaged valves should be reported immediately to the supplier.
Keep container valve outlets clean and free from contaminants particularly oil and water.
Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.
Close container valve after each use and when empty, even if still connected to equipment.
Never attempt to transfer gases from one cylinder/container to another.
Never use direct flame or electrical heating devices to raise the pressure of a container.
Do not remove or deface labels provided by the supplier for the identification of the content of the container.
Suck back of water into the container must be prevented.

7.2. Conditions for safe storage, including any incompatibilities

Observe all regulations and local requirements regarding storage of containers.
Containers should not be stored in conditions likely to encourage corrosion.
Container valve guards or caps should be in place.
Containers should be stored in the vertical position and properly secured to prevent them from falling over.
Stored containers should be periodically checked for general condition and leakage.
Keep container below 50°C in a well ventilated place.
Store containers in location free from fire risk and away from sources of heat and ignition.
Keep away from combustible materials.
Segregate from oxidant gases and other oxidants in store.
All electrical equipment in the storage areas should be compatible with the risk of a potentially explosive atmosphere.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation.
 Systems under pressure should be regularly checked for leakages.
 Gas detectors should be used when flammable gases/vapours may be released.
 The substance is not classified for human health hazards or for environment effects and it is not PBT or vPvB so that no exposure assessment or risk characterisation is required. For tasks where the intervention of workers is required, the substance must be handled in accordance with good industrial hygiene and safety procedures.
 Consider the use of a work permit system e.g. for maintenance activities.

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

- Eye/face protection
 - : Provide adequate general and local exhaust ventilation.
 - : Systems under pressure should be regularly checked for leakages.
 - : Gas detectors should be used when flammable gases/vapours may be released.
 - : The substance is not classified for human health hazards or for environment effects and it is not PBT or vPvB so that no exposure assessment or risk characterisation is required. For tasks where the intervention of workers is required, the substance must be handled in accordance with good industrial hygiene and safety procedures.
 - : Consider the use of a work permit system e.g. for maintenance activities.
 - : 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:
 - : Protect eyes, face and skin from liquid splashes.
 - : PPE compliant to the recommended EN/ISO standards should be selected.
 - : Wear safety glasses with side shields.
 - : Wear goggles and a face shield when transfilling or breaking transfer connections.
 - : Standard EN 166 - Personal eye-protection - specifications.
- Skin protection
 - Hand protection
 - : Wear working gloves when handling gas containers.
 - : Standard EN 388 - Protective gloves against mechanical risk, performance level 1 or higher.
 - Other
 - : Consider the use of flame resistant anti-static safety clothing.
 - : Standard EN ISO 14116 - Limited flame spread materials.
 - : 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.
 - : Consult respiratory device supplier's product information for the selection of the appropriate device.
 - : Recommended: Filter AX (brown).
 - : 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
 - : Wear cold insulating gloves when transfilling or breaking transfer connections.
 - : Standard EN 511 - Cold insulating gloves.

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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

- Physical state at 20°C / 101.3kPa : Gas.
- Colour : Colourless liquid.

Odour : Odourless.

Melting point / Freezing point : -182 °C
 -182 °C

Boiling point : -161 °C

Flammability : Not available

Lower explosion limit : 4.4 vol %

Upper explosion limit : 17 vol %

Flash point : Not applicable for gases and gas mixtures.

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Auto-ignition temperature	: 595 °C
Decomposition temperature	: Not available
pH	: Not applicable.
Viscosity, kinematic	: Not applicable.
Water solubility [20°C]	: 26 mg/l
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure [20°C]	: Not applicable.
Vapour pressure [50°C]	: Not applicable.
Density and/or relative density	: Not applicable.
Relative vapour density (air=1)	: 0.6
Particle characteristics	: Not applicable.

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Explosive properties	: Not applicable.
Explosion limits	: 4.4 – 17 vol %
Oxidising properties	: None.
Critical temperature [°C]	: -82 °C

9.2.2. Other safety characteristics

Molar mass	: 16 g/mol
Evaporation rate	: Not applicable for gases and gas mixtures.
Gas group	: Press. Gas (Ref. Liq.).
Other data	: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

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

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

10.4. Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

10.5. Incompatible materials

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

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

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

Acute toxicity	: No known toxicological effects from this product.
Skin corrosion/irritation	: No known effects from this product.
Serious eye damage/irritation	: No known effects from this product.
Respiratory or skin sensitisation	: No known effects from this product.
Germ cell mutagenicity	: No known effects from this product.

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Carcinogenicity	: No known effects from this product.
Toxic for reproduction : Fertility	: No known effects from this product.
Toxic for reproduction : unborn child	: 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.

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

EC50 48h - Daphnia magna [mg/l]	: 69.4 mg/l
EC50 72h - Algae [mg/l]	: 19.4 mg/l
LC50 96 h - Fish [mg/l]	: 147.5 mg/l

12.2. Persistence and degradability

Assessment	: The substance is readily biodegradable. Unlikely to persist.
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12.3. Bioaccumulative potential

Assessment	: Not expected to bioaccumulate due to the low log Kow (log Kow < 4). See section 9.
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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.
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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. Endocrine disrupting properties

Assessment	:
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12.7. Other adverse effects

Other adverse effects	: Can cause frost damage to vegetation.
Effect on the ozone layer	: None.
Global warming potential [CO ₂ =1]	: 25
Effect on global warming	: When discharged in large quantities may contribute to the greenhouse effect. Contains greenhouse gas(es).

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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

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

13.2. Additional information

None.

SECTION 14: Transport information

14.1. UN number or ID number

In accordance with ADR / RID / IMDG / IATA / ADN

UN-No. : 1972

14.2. UN proper shipping name

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

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

Transport by sea (IMDG) : NATURAL GAS, 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) : Not applicable.

Transport by air (ICAO-TI / IATA-DGR) : Not applicable.

Transport by sea (IMDG) : Not applicable.

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 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. Maritime transport in bulk according to IMO instruments

Not applicable.

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SECTION 15: Regulatory information

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

EU-Regulations

Restrictions on use : None.
 Other information, restriction and prohibition regulations : Ensure all national/local regulations are observed.
 Not listed on the PIC list (Regulation EU 649/2012).
 Seveso Directive : 2012/18/EU (Seveso III) : Listed.

National regulations

No additional information available

15.2. Chemical safety assessment

A CSA has been carried out.
 Refer to section 8.2.

SECTION 16: Other information

Indication of changes : Revised safety data sheet in accordance with commission regulation (EU) No 2015/830.

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.
 STOT - RE : Specific Target Organ Toxicity - Repeated Exposure.
 UFI : Unique Formula Identifier.

Training advice

: Ensure operators understand the flammability hazard.
 The hazard of asphyxiation is often overlooked and must be stressed during operator training.

Further information

: This Safety Data Sheet has been established in accordance with the applicable European Union legislation.

Full text of H- and EUH-statements	
Flam. Gas 1A	Flammable gases, Category 1A
H220	Extremely flammable gas.
H281	Contains refrigerated gas; may cause cryogenic burns or injury.
Press. Gas (Ref. Liq.)	Gases under pressure : Refrigerated liquefied gas

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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.

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