

Safety Data Sheet

acc. to OSHA HCS (29 CFR 1910.1200)

Printing date: 06/03/2016



Revision: 06/03/2016

1 Identification

- **Product identifier**
- **Trade name:** Liquefied Natural Gas
- **Other product identifiers:** Natural Gas, Refrigerated
- **CAS Number:**
8006-14-2
- **Recommended use and restriction on use**
- **Recommended use:** Fuel
- **Restrictions on use:** Contact manufacturer
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
LINN Operating, Inc.
600 Travis; Suite 5100
Houston, TX 77002
281.840.4000
- **Emergency telephone number:** 866.951.9825

2 Hazard(s) identification

- **Classification of the substance or mixture**

Flam. Gas 1	H220	Extremely flammable gas.
Press. Gas	H281	Contains refrigerated gas; may cause cryogenic burns or injury.
Simple Asphyxiant		May displace oxygen and cause rapid suffocation.
- **Label elements**
- **GHS label elements**
The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**


 GHS02 GHS04
- **Signal word:** Danger
- **Hazard statements:**
 H220 Extremely flammable gas.
 H281 Contains refrigerated gas; may cause cryogenic burns or injury.
 May displace oxygen and cause rapid suffocation.
- **Precautionary statements:**
 P282 Wear cold insulating gloves/face shield/eye protection.
 P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
 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.
 P336 Thaw frosted parts with lukewarm water. Do no rub affected area.
 P403 Store in a well-ventilated place.

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- **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**
8006-14-2 Natural Gas

4 First-aid measures

- **Description of first aid measures**
- **After inhalation:**
Supply fresh air; consult doctor in case of complaints.
Provide oxygen treatment if affected person has difficulty breathing.
In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After skin contact:**
Rinse with warm water.
In cases of frostbite, rinse with plenty of water. Do not remove clothing.
Seek immediate medical help for blistering or open wounds.
- **After eye contact:**
Protect unharmed eye.
Remove contact lenses if worn.
Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:**
Unlikely route of exposure.
Rinse out mouth and then drink plenty of water.
Do not induce vomiting; immediately call for medical help.
- **Most important symptoms and effects, both acute and delayed:**
Breathing difficulty
Coughing
Dizziness
Cyanosis
Frostbite
Unconsciousness
- **Danger:**
Danger of impaired breathing.
May displace oxygen and cause rapid suffocation.
- **Indication of any immediate medical attention and special treatment needed:**
If blue coloring appears (lips, ear-lobes, finger-nails), give oxygen treatment as quickly as possible.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
BC powder
Foam

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Carbon dioxide

Gaseous extinguishing agents

Fire-extinguishing powder

- **For safety reasons unsuitable extinguishing agents:** Water

- **Special hazards arising from the substance or mixture**

Can form explosive gas-air mixtures.

Formation of toxic gases is possible during heating or in case of fire.

Danger of receptacles bursting because of high vapor pressure if heated.

- **Advice for firefighters**

- **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

- **Additional information:**

Eliminate all ignition sources if safe to do so.

In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures:**

Ensure adequate ventilation.

Keep away from ignition sources.

Protect from heat.

Use personal protective equipment as required.

- **Environmental precautions:** Inform authorities in case of gas release.

- **Methods and material for containment and cleaning up:**

Allow to evaporate.

Allow gas to dissipate.

- **Reference to other sections:**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

- **Handling**

- **Precautions for safe handling:**

Use only in well ventilated areas.

Avoid contact with the eyes and skin.

- **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Protect from heat.

Protect against electrostatic charges.

Emergency cooling must be available in case of nearby fire.

Flammable gas-air mixtures may be formed in empty containers/receptacles.

Keep respiratory protective device available.

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- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:**
Avoid storage near extreme heat, ignition sources or open flame.
Observe official regulations on storing packagings with pressurized containers.
- **Information about storage in one common storage facility:** Store away from foodstuffs.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s):** No relevant information available.

8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Exposure controls**
- **Engineering measures** Use explosion-proof electrical/ventilating/lighting/equipment.
- **Personal protective equipment:**
- **General protective and hygienic measures:**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Avoid breathing gas.
- **Engineering controls:**
Ground/bond container and receiving equipment.
Use only non-sparking tools.
Do not subject to grinding/shock/friction.
- **Breathing equipment:**
Not required under normal conditions of use.
Use suitable respiratory protective device in case of insufficient ventilation.
- **Protection of hands:**
Wear gloves for the protection against mechanical hazards according to OSHA and NIOSH rules.
Gloves should provide protection from freezing temperatures.
- **Eye protection:**



Safety glasses

- Follow relevant national guidelines concerning the use of protective eyewear.
- **Body protection:** Not required under normal conditions of use.
- **Limitation and supervision of exposure into the environment**
Avoid release to the environment.
- **Risk management measures** See Section 7 for additional information.

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9 Physical and chemical properties

· Information on basic physical and chemical properties

· Appearance:

Form: Liquefied gas

Color: Colorless

· **Odor:** Normally odorless. Pungent odor present if odorizing agent is added.

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Melting point/Melting range:** Not determined.

· **Boiling point/Boiling range:** -161 °C (-258 °F)

· **Flash point:** <-18 °C (<-0 °F)

· **Flammability (solid, gaseous):** Extremely flammable liquefied gas.

· **Auto-ignition temperature:** 482-632 °C (900-1170 °F)

· **Decomposition temperature:** Not determined.

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· Explosion limits

Lower: 3.8-6.5 Vol %

Upper: 13-17 Vol %

· **Oxidizing properties:** Not determined.

· **Vapor pressure:** >1 psig

· Density:

Relative density: Not determined.

Vapor density: 0.6 g/cm³ (5.007 lbs/gal) (Air=1)

Evaporation rate: Not applicable.

· Solubility in / Miscibility with

Water: Not miscible or difficult to mix.

· **Partition coefficient (n-octanol/water):** Not determined.

· Viscosity

Dynamic: Not determined.

Kinematic: Not determined.

· **Other information** No relevant information available.

10 Stability and reactivity

· **Reactivity:** No relevant information available.

· **Chemical stability:** Stable under normal temperatures and pressures.

· **Thermal decomposition / conditions to be avoided:**

Danger of receptacles bursting because of high vapor pressure if heated.

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- Contains refrigerated gas; may cause cryogenic burns or injury.
- **Possibility of hazardous reactions:**
 - Extremely flammable gas.
 - Forms explosive gas mixture with air.
 - Toxic fumes may be released if heated above the decomposition point.
- **Conditions to avoid:** Keep ignition sources away - Do not smoke.
- **Incompatible materials:** No relevant information available.
- **Hazardous decomposition products:** Carbon monoxide and carbon dioxide

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:** None.
- **Primary irritant effect:**
- **On the skin:** Based on available data, the classification criteria are not met.
- **On the eye:** Based on available data, the classification criteria are not met.
- **Sensitization:** Based on available data, the classification criteria are not met.
- **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer):**

Substance is not listed.

· **NTP (National Toxicology Program):**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration):**

Substance is not listed.

· **Probable route(s) of exposure:**

Inhalation.
Eye contact.
Skin contact.

· **Acute effects (acute toxicity, irritation and corrosivity):**

May displace oxygen and cause rapid suffocation.
Frostbite

· **Repeated dose toxicity:** No relevant information available.

· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** Based on available data, the classification criteria are not met.
- **Reproductive toxicity:** Based on available data, the classification criteria are not met.
- **STOT-single exposure:** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.

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12 Ecological information

- **Toxicity**
- **Aquatic toxicity** No relevant information available.
- **Persistence and degradability** No relevant information available.
- **Bioaccumulative potential:** No relevant information available.
- **Mobility in soil:** No relevant information available.
- **Additional ecological information**
- **General notes:** Avoid release to the environment.
- **Other adverse effects:** No relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Contact waste processors for recycling information.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|--|
| <ul style="list-style-type: none"> · UN-Number · DOT, ADR, IMDG · IATA | <p>UN1972
Forbidden</p> |
| <ul style="list-style-type: none"> · UN proper shipping name · DOT · ADR, IMDG · IATA | <p>Natural gas, refrigerated liquid
NATURAL GAS, REFRIGERATED LIQUID
Forbidden</p> |
| <ul style="list-style-type: none"> · Transport hazard class(es) · DOT | <p>2.1</p> |
| <ul style="list-style-type: none"> · Class | <p>2.1</p> |



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· Label	2.1
· ADR	
	
· Class	2 3F Gases
· Label	2.1

· IMDG	
	
· Class	2.1
· Label	2.1

· IATA	
· Class	Forbidden
· Label	Forbidden

· Packing group	This UN-number is not assigned a packing group.
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· Environmental hazards	
· Marine pollutant:	No

· Special precautions for user	Warning: Gases
· Danger code (Kemler):	223
· EMS Number:	F-D,S-U

· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
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15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- United States (USA)
- SARA

· Section 302 (extremely hazardous substances):

Substance is not listed.

· Section 304 (emergency release notification):

Substance is not listed.

· Section 355 (extremely hazardous substances):

Substance is not listed.

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· Section 313 (Specific toxic chemical listings):
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Substance is not listed.

· TSCA (Toxic Substances Control Act)
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Substance is listed.

· Proposition 65 (California)

· Chemicals known to cause cancer:

Substance is not listed.

· Chemicals known to cause reproductive toxicity for females:
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Substance is not listed.

· Chemicals known to cause reproductive toxicity for males:
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Substance is not listed.

· Chemicals known to cause developmental toxicity:

Substance is not listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency):

Substance is not listed.

· IARC (International Agency for Research on Cancer):
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Substance is not listed.

· NIOSH-Ca (National Institute for Occupational Safety and Health):
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Substance is not listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Date of preparation / last revision** 06/03/2016 / -

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Flam. Gas 1: Flammable gases – Category 1

Press. Gas: Gases under pressure – Refrigerated liquefied gas

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)

Website, US EPA Substance Registry Services (ofmpub.epa.gov/sorinternet/registry/substreg/home/overview/home.do)

Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: ISBN: 978-0-470-07488-6

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Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaassen, Curtis D., ed., ISBN:
978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

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