Section 1: Identification Of The Substance/Mixture And Of The Company/Undertaking

1.1. Product identifier
Product name: LIQUEFIED NATURAL GAS (LNG)
REACH Registration Nr: This substance is exempt from registration according to Regulation (EC) No 1907/2006 (REACH).
Pure substance/mixture: Substance

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses: This multi-purpose product used as fuel in industry.

1.3. Details of the supplier of the safety data sheet
Supplier: AS Eesti Gaas
Address: Sadama 7, 10111 Tallinn, Estonia
Tel: +372 630 3003
E-mail address: info@gaas.ee
HSE Manager: +372 506 9127

Section 2: Hazards Identification

2.1. Classification of the substance or mixture
Human health Human health Skin Sens. 1 - 1-4317
Environment Environment Not classified

2.2. Label elements

Label In Accordance
With (EC) Ng. 1272/2008

Signal Word
DANGER

Hazard statements
H224 — Extremely flammable liquid and vapour
H281 — Contains refrigerated gas; may cause cryogenic burns or injury
H317 — May cause an allergic skin reaction

Precautionary statements
P210 — Keep away from heat/sparks/open flames/hot surfaces — No smoking
P233 — Keep container tightly closed
P243 — Take precautionary measures against static discharge.
P241 — Use explosion-proof electrical/ventilating/lighting equipment
P260 — Do not breathe gas
P280 — Wear protective clothing, gloves, eye and face protection.
P301+312 - If swallowed: call a POISON CENTER or doctor/physician if you feel unwell.
P370+378 — In case of fire: Use foam, carbon dioxide or dry powder for extinction.
P377 — Leaking gas fire: do not extinguish, unless leak can be stopped safely
P381 — Eliminate all ignition sources if safe to do so
2.3. Other hazards

Physico-chemical properties

- Extremely flammable.
- May form explosive mixtures with air in confined or congested areas.
- Accidentally exposing a receptacle containing this liquid to intense heat (e.g. in the event of a fire) may cause the receptacle to break and the product to spread — its vapours may then ignite, which could cause an explosion.
- Vapour may be denser than air and may spread along the ground, before gradually dispersing. Occur explosive mixtures with air at ambient temperature.

Properties with effects on health

- Although short term, overdose inhalation can cause death by suffocation effect.
- Liquid product contact causes frostbite on skin.

Section 3: Composition/Information On Ingredients

3.1. Substance

Chemical nature: Natural gas, C1-C9

<table>
<thead>
<tr>
<th>Substance name</th>
<th>EC №</th>
<th>CAS №</th>
<th>% (mass)</th>
<th>Classification (Dir. 67/548)</th>
<th>Classification (Reg.1272/2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methane</td>
<td>200-812-7</td>
<td>74-82-8</td>
<td>≥96,0</td>
<td>F+; R12</td>
<td>Flam. Gas 1 (H220) Press. Gas</td>
</tr>
</tbody>
</table>

For the full text of the R-phrases mentioned in this section, see section 16.
For the full text of the H-statements mentioned in this section, see section 16.
The data shown are in accordance with the latest EC Directives.

Note: When put on the market gases have to be classified as 'Gases under pressure', in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case.
Section 4: First Aid Measures

4.1. Description of first aid measures

General advice

Natural gas isn't poisonous. Due to the release of natural gas, the amount of oxygen in the environment will be reduced. Organization of muscle slightly weakens when oxygen concentration in the inhaled air falls below 17%, dizziness and tiredness occurs below 12%, loss of consciousness occurs at 9% and breathing and heartbeat stops below 6%, people lost their lives. It has choking effect.

IF SYMPTOMS ARE SERIOUS OR PERSIST, CALL A DOCTOR OR SEEK EMERGENCY MEDICAL TREATMENT.

Move the victim to fresh air as quickly as possible. Interrupt the electricity supply if doing so will not generate sparks in the area where the product's vapour has spread.

Ensure that there is adequate ventilation and check that the atmosphere is breathable and safe before entering confined spaces.

Ingestion

Immediately rinse mouth. Keep person under observation. Do not induce vomiting.

If vomiting occurs keep head low. Transport immediately to hospital and bring along these instructions.

Inhalation

Move into fresh air and keep at rest. Rinse nose and mouth with water. If necessary, should be applied artificial respiration and heart massage. If there should be given oxygen. Get medical attention if any discomfort continues.

Eye contact

IN THE EVENT OF CONTACT WITH THE EYES: carefully rinse with water for at least 15 minutes.

Remove contact lenses if present and easy to do so. Continue rinsing.

Seek medical attention. If the eyes have been burned by the cold, an ophthalmological examination should be performed as quickly as possible.

Skin contact

Treat the affected areas as for thermal burns.

Immediately rinse with plenty of water for at least 15 minutes. Immediately remove any soiled or spattered clothing if it is not adhered to the skin. Do not attempt to heat the area directly (e.g. by rubbing, with a hot bath), Seek medical attention for serious burns — in such cases, the victim must be taken to hospital right away.
4.2. Most important symptoms and effects, both acute and delayed

Ingestion: Nausea, vomiting.

Inhalation: Inhaling the vapour may cause drowsiness and dizziness. The symptoms of excessive exposure are lightheadedness, headaches, fatigue and nausea, and may go as far as loss of consciousness or even respiratory arrest.

Eye contact: Direct contact with this liquefied gas may burn the eyes.

Skin contact: Contact with the product may cause frostbite.

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

Advice for doctors: Treat according to the symptoms.

Section 5: Firefighting Measures

5.1. Extinguishing media

Suitable extinguishing media: USE: Dry chemical or CO₂. Water spray or fog.

DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

 UNSuitable extinguishing media: DO NOT USE WATER as an extinguishing medium media because it could spread the fire and increase the LNG's evaporation rate. Water should only be used as a means of protection against the heat flow.

5.2. Special hazards arising from the substance or mixture

Special risk: It is dangerous to extinguish the flame if it will not be possible to stop the leak quickly. The fire should only be extinguished once the valve has been closed, or if extinguishing the fire would make it possible to close the valve. Accidentally exposing a receptacle containing this liquid to intense heat (e.g. in the event of a fire) may cause the receptacle to break and the product to spread — its vapours may then ignite, which could cause an explosion. Incomplete combustion and thermal decomposition release gases with varying toxicity levels, such as CO, CO₂, different hydrocarbons, aldehydes, and soot. When these substances are present in high concentrations or in a confined space, it is very dangerous to inhale them.
5.3. Advice for firefighters

Specific protective equipment for firefighting personnel

- Protect personnel with water curtains. If the fire is large, or is in a confined or poorly-ventilated space, wear a fire proximity suit and a self-contained breathing apparatus (SCBA) with a full-face mask.

Section 6: Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

General information

- Evacuate personnel to a safe place and set up a safety perimeter. Alert the emergency services.
- SHUT OFF THE LNG SUPPLY if it is possible to do so. Remove all ignition sources (no smoking, torches, sparks or flames in the immediate area). Suspend all work with open flames, stop all vehicle movement and turn off all devices that may give off sparks or flames. Interrupt the electricity supply if doing so will not generate sparks in the area where the product's vapour has spread.
- VENTILATE THE AREA THOROUGHLY. Remove combustible materials and, if possible, exposed tanks. In the event of a two-phase leak, avoid skin contact with the liquid. Do not stop or wait inside the gas cloud — instead, always stay behind the source. The vapour cloud may look like a whitish fog that could disappear depending on the air humidity level. Do not restore the normal situation until it is absolutely certain that it is safe to do so.

Advice for nonemergency personnel

- Immediately evacuate personnel to a safe place.
- Remove all ignition sources (no smoking, torches, sparks or flames in the immediate area). For personal protective equipment, see section 8.

Advice for emergency responders

- Take all the necessary measures to protect emergency responders from the risks of fire, explosion and inhalation: one important precaution is to use breathing apparatus. Use personal protective equipment: a protective helmet with a visor and neck protection (so that the head is fully protected), tightlyfitting boots and gloves, and overalls (with the legs of the trousers outside the boots). These must be made of non-melting, fire-resistant materials. Remove all ignition sources.
6.2. Environmental precautions
General information
Prevent spreading over wide areas. Raise the alarm if the product is released towards a combined space (e.g. sewers).

6.3. Methods and material for containment and cleaning up
Methods for cleaning up
Keep all ignition sources away from spilled material. Provide adequate ventilation. Spilled liquid will evaporate completely in enclosed area so that adequate ventilation must be done and should be entered with protective clothing after measurement.

6.4. Reference to other sections
Personal protective equipment
See section 8 for more details.
Other information
See section 13 for more details.

Section 7: Handling And Storage
7.1. Precautions for safe handling
Recommendations for safe handling
This gas is produced, stored, transported and distributed UNDER PRESSURE, IN LIQUID STATE. It is not handled directly in normal distribution conditions, because when it is used, it is constantly contained inside closed systems until its final destruction by combustion. THE PRIMARY PRECAUTIONS TO TAKE CONSIST IN ENSURING THAT THE GAS REMAINS CONTAINED AND IN ONLY USING EQUIPMENT THAT IS APPROPRIATE FOR THE PRODUCT, ITS PRESSURE AND ITS TEMPERATURE. Ensure that there is adequate ventilation. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Take precautionary measures against static discharge.
NEVER PERFORM WELDING ACTIVITIES ON A RECEPTACLE CONTAINING LNG, NEVER PERFORM WORK THAT COULD COMPROMISE THE CONTAINMENT OF FIXED STORAGE FACILITIES OR RECEPTACLES. Storage tanks must be inspected, cleaned and maintained in accordance with strict procedures. These tasks may only be performed by qualified personnel (whether internal or external), particularly the atmosphere check equipment, see section 8.
Technical measures

Ensure that there is adequate ventilation. Design facilities in such a way as to prevent spills from spreading (tanks, retention basins and siphons in runoff water systems must be designed with this in mind). Take precautionary measures against static discharge. Before transfers, check that all equipment is earthed.

Fire and explosion prevention

No smoking.

Transfers and vehicle loading and unloading may only be performed by specially trained personnel following appropriate procedures. Design facilities in such a way as to prevent gas build-up. Never heat tanks or pipes containing gas with an open flame.

Hygiene measures

Do not smoke while handling this product. The product should be handled in line with good industrial hygiene practices and according to the safety instructions.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

STORE THIS LIQUEFIED GAS IN LINE WITH THE APPROPRIATE REGULATIONS, BASED ON THE TYPE OF STORAGE AND THE QUANTITIES BEING STORED. All electrical equipment, including the lighting systems in rooms where the product may be kept, must be adjusted to take account of the hazard, in accordance with the European ATEX Directives. If possible, store outdoors or in a well-ventilated place. Keep away from heat and ignition sources. Prevent the accumulation of static charge. Do not store near combustible and combustive materials.

Materials to avoid

Strong oxidants, halogens.

Packaging materials

Only use cylinders and tanks that comply with regulations on pressurised or cryogenic equipment and that are intended for use with this liquefied gas.

7.3. Specific end use(s)

The identified uses for this product are detailed in Section 1.2
Section 8: Exposure Controls/Personal Protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Name</th>
<th>STD</th>
<th>TWA-8 Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methane</td>
<td>WEL</td>
<td>1000 ppm 650 mg/m³</td>
</tr>
</tbody>
</table>

WEL = Workplace Exposure Limits.

8.2. Exposure controls

Occupational exposure controls:

Technical measures
If working in a confined space (e.g. a vessel or tank), ensure that there is no risk of ignition, then check whether the atmosphere is breathable. Wear the recommended protective equipment. Do not enter empty storage tanks until the amount of available oxygen has been measured.

Personal protective equipment:

General information
All necessary collective protection measures must be set up and applied before personal protective equipment is used.

Respiratory protection
Ensure that there is adequate ventilation. In the event of an emergency (accidental exposure) or when performing shortterm, exceptional work in atmospheres where the product is present, a respiratory protection apparatus with an air supply must be worn.

Eye protection
If spattering or blowouts are possible, full head and face protection (protective visor or safety goggles) must be worn.

Skin and body protection
Wear insulating gloves to protect against the cold (that meet the requirements of standard EN 511)/ eye/face protection. If necessary, a face visor, clothes covering the entire body and anti-static safety shoes may be worn.

Hand protection
Wear insulating gloves to protect against the cold that meet the requirements of standard EN 511.

Protective equipment

Environmental exposure controls
No Information available.
### Section 9: Physical And Chemical Properties

#### 9.2. Information on Basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquefied gas</td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td>Colourless</td>
<td></td>
</tr>
<tr>
<td>Physical state at 20 °C</td>
<td>Gas</td>
<td></td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Boiling point/interval</td>
<td>-166 °C to -157 °C</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>&lt; -188 °C</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Explosive limits in air upper</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>lower</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapour density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>0.54 – 0.66</td>
<td>at 0 °C (gas)</td>
</tr>
<tr>
<td>Density</td>
<td>420 to 470 kg/m³</td>
<td>at -162 °C (liquid)</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>0.024 – 0.061 g/l</td>
<td>at 20 °C</td>
</tr>
<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>537 °C</td>
<td></td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>May form explosive mixtures with air</td>
<td></td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Possibility of hazardous reaction</td>
<td>Rapid phase transition (RPT) upon contact with water; shock wave.</td>
<td></td>
</tr>
<tr>
<td>Freezing point</td>
<td>-182.6 °C</td>
<td></td>
</tr>
</tbody>
</table>
Section 10: Stability And Reactivity

10.1. Reactivity
General Information  There are no known reactivity hazards associated with this product.

10.2. Chemical stability
Stability  Stable under the recommended handling and storage conditions.

10.3. Possibility of hazardous reactions
Hazardous reactions  If containment is compromised: risk of ignition in the presence of air and risk of rapid phase transition (shock wave) upon contact with water.

10.4. Conditions to avoid
Conditions to avoid  Keep away from open flames, hot surfaces and ignition sources. Prevent the accumulation of static charge.

10.5. Incompatible materials
Materials to avoid  Avoid contact with strong reducing agent (oxidizing) and halogen (as chlorine).

10.6. Hazardous decomposition products
Hazardous decomposition products  None under normal usage conditions.

Section 11: Toxicological Information

11.1. Information on toxicological effects
Acute toxicity  Local effects  Product information:
Skin contact  Contact with the product may cause frostbite.
Eye contact  Direct contact may cause burns to the eyes.
Inhalation  May cause asphyxia if present in high concentrations. Symptoms may include loss of consciousness or mobility. The victim may not be aware of what is happening. Possible narcotic effects if present in low concentrations. Symptoms may include lightheadedness, headaches, nausea, loss or coordination or even loss of consciousness.
Ingestion  Nausea, vomiting.
Sensitisation:
Sensitisation
There is no data to indicate that the substance could potentially cause respiratory tract or skin sensitisation.

Specific effects:
Carcinogenicity
Does not contain compounds listed as carcinogenic.
Mutagenicity
Does not contain compounds listed as mutagenic.
Toxicity for reproduction
Does not contain compounds listed as toxic for reproduction.

Section 12: Ecological Information

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

Persistence and degradability
The product is biodegradable. When the product is poured, evaporates and mixes with air.

Bioaccumulative potential
There is no evidence that accumulating in the soil.

Mobility in soil
Since it is highly volatile, this liquefied gas is unlikely to pollute soil or water. Product is insoluble in water. Volatile components of the product will be dispersed into the atmosphere.

Results of PBT and vPvB assessment
This product does not contain any PBT or vPvB substances.

Other adverse effects
No information required.

Section 13: Disposal Considerations

13.1. Waste treatment methods

Waste from residues/unused products
If gas needs to be removed from containers or tanks, burning it off with appropriate equipment (e.g. a torch) is the safest, most environmentally friendly was to do so. This must be done by specially trained personnel using suitable equipment and applying appropriate procedures.

Contaminated packaging
Empty packaging may contain flammable or explosive vapours.

Waste code according to the EWC
According to the European Waste Catalogue, the waste code does not apply to the product itself, but to its application. The waste code must therefore be attributed by the user, depending on how the product is used.
### Section 14: Transport Information

<table>
<thead>
<tr>
<th>ADR/RID</th>
<th>UN1972</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UN/ID No</strong></td>
<td>UN1972</td>
</tr>
<tr>
<td><strong>Proper shipping name</strong></td>
<td>Natural gas, LNG, Liquefied Natural Gas, refrigerated liquid</td>
</tr>
<tr>
<td><strong>Transport hazard class</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>ADR/RID hazard labels</strong></td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Classification code</strong></td>
<td>3F</td>
</tr>
<tr>
<td><strong>Tunnel restriction code</strong></td>
<td>B/D</td>
</tr>
<tr>
<td><strong>Hazard identification number</strong></td>
<td>223</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>UN1972, Natural gas, refrigerated liquid, 2.1, (B/D)</td>
</tr>
</tbody>
</table>

### IMDG/IMO

<table>
<thead>
<tr>
<th>UN/ID No</th>
<th>UN1972</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proper shipping name</strong></td>
<td>Natural gas, LNG, Liquefied Natural Gas, refrigerated liquid</td>
</tr>
<tr>
<td><strong>Transport hazard class</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>EMS No</strong></td>
<td>UN1972</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>UN1972, Natural gas, refrigerated liquid, 2.2,</td>
</tr>
<tr>
<td><strong>Excepted quantities</strong></td>
<td>E0</td>
</tr>
<tr>
<td><strong>Limited quantity</strong></td>
<td>Prohibited</td>
</tr>
</tbody>
</table>

**ICAO/IATA**

**Prohibited**

<table>
<thead>
<tr>
<th><strong>ADN</strong></th>
<th>UN1972</th>
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<tbody>
<tr>
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<td>Natural gas, refrigerated liquid</td>
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<tr>
<td><strong>Transport hazard class</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Code classification</strong></td>
<td>3F</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>UNI 972, Natural gas, refrigerated liquid, 2.1</td>
</tr>
<tr>
<td><strong>Excepted quantities</strong></td>
<td>E0</td>
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<tr>
<td><strong>Limited quantity</strong></td>
<td>Prohibited</td>
</tr>
<tr>
<td><strong>Ventilation</strong></td>
<td>VEO1</td>
</tr>
</tbody>
</table>

| **Transport Labels**        | ![Flammable Gas 2](image)                  |
Section 15: Regulatory Information

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

EU Legislation


15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out.

Section 16: Other Information

Full text of R-phrases mentioned in sections 2 and 3

R12 – Extremely flammable

Full text of H-statements mentioned in sections 2 and 3

H220 – Extremely flammable gas

H224 – Extremely flammable liquid and vapour

H281 – Contains refrigerated gas; may cause cryogenic burns or injury

Abbreviations and acronyms

GLP = Good Laboratory Practice

Bw = body weight

Bw/day = body weight/day

Date of revision: September 2019

This sheet is a complement to the technical usage instructions, but does not replace them. The information contained herein is based on the author's knowledge of the product in question, on the indicated date. It has been provided in good faith. Users are advised that there may be risks connected with using the product in ways other than those intended. Under no circumstances does this sheet exempt users from knowing and applying all the legislation and regulations governing their activities. Users shall be solely responsible for taking the precautions required in view of their use of the product. The examples of legal provisions given here were provided with the sole aim of helping users to fulfil the requirements to which they are subject. The list should not be considered exhaustive. Users must check whether they are subject to other requirements, stemming from legal provisions other than those listed here.

End of Safety Data Sheet