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

1.1 Product identifier

Name of the Substance: Liquefied Petroleum Gas, sweetened
EC No.: 270-705-8
REACH Registration No.: 01-2119490743-31-0002
CAS No.: 68476-86-8

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

Established use**:** fuel

1.3 Details of the supplier of the safety data sheet

Manufacturer:

Public Company *ORLEN Lietuva*
Juodeikiai, LT-89467 Mažeikiai District, Lithuania
Tel.: +370 443 92121
Telefax: +370 443 92525
E-mail address: info@orlenlietuva.lt

1.4. Emergency telephone number

Public Company ORLEN Lietuva (24 hours a day): +370 443 92510
Poison Information Bureau. In case of poisoning (24 hours a day): +370 52362052

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or mixture

Classification according to Regulation (EC) No. 1272/2008:
Flam. Gas 1, H220
Liquefied gas, H280

2.2 Label elements

Labelling according to Regulation (EC) No. 1272/2008
Hazard pictograms

GHS02 GHS04

Signal word:
Danger.

Hazard statements:
H220: Extremely flammable gas.
H280: Contains gas under pressure, may explode if heated.

Precautionary statements:
P102: Keep out of reach of children.
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 sources of ignition if safe to do so.

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

2.3 Other hazards

Liquefied petroleum gas (LPG) is extremely flammable liquefied hydrocarbon compound which at ambient temperature may form explosive hydrocarbon mixtures with air.
If inhaled, LPG hydrocarbons have narcotic effect leading to nervous system and heart disorders; irritating to respiratory tract and eyes. Inhalation of large gas concentrations may lead to unconsciousness or suffocation in the short run due to oxygen deficiency. After contact with skin or eyes liquefied gas may cause frostbite due to intensive evaporation.
Formation of toxic compounds with other materials in water and air at ambient temperatures is not characteristic to LPG. Accidental release may produce short-term soil, water and atmosphere contamination and significant reduction of oxygen concentration in ambient air, especially in a confined spaces.

SECTION 3: COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances

Chemical composition

Liquefied petroleum gas, sweetened, mixture of C_4 hydrocarbons containing small amounts of C_3, C_5. LPG contains less than 0,1 % mass of 1,3-butadiene.

3.1.1 Components according to Regulation (EC) No. 1272/2008

Description	CAS No.	EC No.	Concentration, % m/m
Liquefied petroleum gas (LPG)	68476-86-8	270-705-8	100

SECTION 4: FIRST AID MEASURES

Product Specific hazards

Extremely flammable liquefied gas. An asphyxiant at high concentrations – oxygen depletion can be fatal. Contact with liquefied gas may result in frostbite.

4.1 Description of first aid measures

General Information

Before attempting to rescue casualties, isolate area from all potential sources of ignition including disconnecting electrical supply.
Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces. Take care to self-protect to avoid poisoning – use approved self-contained positive pressure air supplied breathing apparatus with a full face piece.
Move contaminated patient(s) out of the dangerous area. Seek medical assistance – show the material safety data sheet or label if possible.

Inhalation

Move to fresh air. Do not leave the victim unattended. Keep patient warm and at rest. If unconscious place in recovery position.
Seek immediate medical attention.
If breathing is difficult, give oxygen if possible, or assisted ventilation. In the event of cardiac arrest, (no pulse), apply cardiopulmonary resuscitation.

Skin contact

Do not remove clothing that adheres due to freezing. Flush affected area with plenty of water. Continue for at least 15 minutes. If there are signs of frostbite, (blanching or redness of skin or burning

or tingling sensation), do not rub, massage or compress the affected area. Send the casualty immediately to hospital.

Eye contact
Remove any contact lenses. Flush eyes with water thoroughly and continuously for at least 15 minutes. Keep eye wide open while rinsing.
If there are signs of frostbite, pain, swelling, lachrymation or photophobia persists, the casualty should be seen in a specialist health care facility.

Ingestion
Not considered a likely route of exposure – frostbite to the lips and mouth may occur if in contact with the liquid.

4.2 Most important symptoms and effects, both acute and delayed
Inhalation of vapours to high concentrations may cause asphyxiation. Skin and eye contact with product (LPG) in liquid form may cause frostbite.

4.3 Indication of any immediate medical attention and special treatment needed
Asphyxiant gas at normal temperature and pressure – no any specific antidote. If affected by liquid, administer frostbite treatment.

SECTION 5: FIREFIGHTING MEASURES

Flammability
Liquefied petroleum gas is extremely flammable; it may form explosive mixtures with air. LPG is transported, stored and handled at temperatures higher than its flash point. Avoid all open and potential sources of ignition.

5.1 Extinguishing Media
Suitable Extinguishing Media
Large fire: Use water spray, water fog, water steam or foam.
Small fire: Dry powder or carbon dioxide (CO_2) extinguisher, dry sand or fire fighting foam.

Unsuitable Extinguishing Media
DO NOT use water jet. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

5.2 Special hazards arising from the substance or mixture
Combustion products:
Incomplete combustion is likely to give rise to carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

Specific Hazards
Where possible stop the flow of gas, and if safe to do so. If the flow cannot be stopped allow the fire to burn out, whilst cooling containers, equipment and surroundings with a water spray.
LPG in gaseous phase is heavier than air, therefore explosive gas and air mixtures can accumulate in low non-ventilated areas. Vapours may travel long distances to ignition sources and flash back. Considerable amounts of toxic gas (CO, CO_2) may be emitted in case of fire.
Containment vessels may explode under fire conditions – use water spray to cool unopened containers.
Do not allow run-off from fire fighting to enter drains or water courses – may cause explosion hazard in drains and may reignite.

5.3 Advice for firefighters

In case of a large fire or in confined or poorly ventilated spaces wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode in addition to standard fire fighting gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear normal personal protective equipment: antistatic working clothes, work gloves, work helmet, antistatic non-skid safety shoes or boots, goggles or face shield, if splashes or contact with eyes is possible or anticipated. Respiratory protection: Self-Contained Breathing Apparatus (SCBA), unless the atmosphere is proved to be safe.

Spillages of material generate large volumes of extremely flammable gas. As LPG flash point is very low any spillage or leak of the material causes serious fire and/or explosion hazard. Gas is heavier than air and will accumulate in low areas or confined spaces.
Stop leak if safe to do so. Avoid direct contact with released material and breathing vapours. Stay upwind. Keep non-involved personnel away from the area of spillage. Alert emergency personnel.
Enter area only if strictly necessary. A combustible gas detector can be used to check for flammable gas or vapours. Eliminate all ignition sources if safe to do so (e.g. electricity, sparks, fires, flares, etc.).
If required, notify relevant authorities according to applicable regulations.
In case of release of considerable amounts of LPG, extensive amounts of explosive vapours heavier than air are formed which may travel long distances to the sources of ignition, therefore immediately inform the downwind area.

6.2 Environmental precautions

Spillages on to Land
Prevent further leakage or spillage if safe to do so. Prevent spillage from entering drains or any place where accumulation may occur. Ensure adequate ventilation, especially in confined areas.

Spillages on water or at sea
Prevent further leakage or spillage if safe to do so. Spillages of liquid product in the water will likely result in a quick and complete vaporization of the product. Isolate the area and prevent fire/explosion hazard for ships and other structures, taking into account wind direction and speed, until the material is completely dispersed.
If the spillage contaminates rivers, lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Spillages on to Land
Contain spillage – ventilate area and allow to evaporate.

Spillages on water or at sea
Contain spillage – allow to evaporate.

Additional Information
Spillages of liquid product will create a fire hazard and form an explosive atmosphere. Large spillage should be smothered with foam to reduce product evaporation and the risk of explosion or ignition. Ensure all equipment is non-sparking or electrically bonded.

6.4. Reference to other sections

See section 8 for Exposure controls/personal protection. See section 13 for Disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Ensure that all relevant regulations regarding explosive atmospheres, and handling and storage facilities of flammable products, are followed. Proper mobile tanks should be used for liquefied petroleum gas transportation. Prevent product spillage to sewage or water bodies while handling and storing.
Ensure safe systems of work or equivalent arrangements are in place to manage risks. Smoking, eating and drinking should be prohibited.
The vapour is heavier than air; beware of accumulation in pits and confined spaces.
To avoid frostbite do not touch cold fittings, equipment, cylinders and tanks with liquefied gas barehanded.

7.2 Conditions for safe storage, including any incompatibilities

Handling
During product transfer activities (loading and unloading of mobile tanks), there is a risk of static electrical discharge, therefore take precautionary measures against static electricity; use proper bonding and/or grounding. Handle only in areas away from potential ignition sources.
Use piping and equipment designed to withstand the pressures to be encountered. Use a check valve or other protective device to prevent reverse flow.
Consider technical advances and process upgrades (including automation) for the elimination of releases. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Drain down systems and clear transfer lines prior to breaking containment.
Clean/flush equipment, where possible, prior to maintenance. Regularly inspect, test and maintain all control measures.
Cleaning, inspection and maintenance of the internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations.
Handle empty containers with care; gas, vapour residue may be flammable. Do not pressurise, cut, weld, braze, solder, drill, or grind on containers.
Avoid contact with oxidising agents, chlorine and hydrogen chloride or hydrogen fluoride.
Dispose of rinse water in accordance with local and national regulations.

Storage
Store in specifically designated storage facilities located in a safe distance from potential sources of ignition.
Containers and tanks should be marked and warning boards should be placed as reference to safe equipment operation and product storage.
For maintenance work or conservation, emptied tanks should be purged, and blanketed with inert gas (i.e. nitrogen).

7.3 Specific end use(s)

Liquefied petroleum gas, sweetened, is used as fuel.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure Limits
National occupational exposure limits allowed should be observed. Where not established, the following short-term exposure limit is recommended – 1200 mg/m^3.

8.2 Exposure controls

8.2.1 Technical Measures

When performing various technical and production operations with LPG, vapours may be evolved into the atmosphere, and their concentration in workplace air should be controlled to the established acceptable level.

8.2.2 Personal Protective Equipment

Respiratory Protection

When toxic gas is evolved during the work and employees are exposed to them, proper respiratory protection equipment, such as self-contained gas masks and self-contained breathing apparatus should be used. Respiratory protection equipment should be selected and used in accordance with the manufacturer's instructions and requirements established by law.

NOTE. Filtering masks are hardly effective for protection against C_2, C_3 and C_4 hydrocarbons.

Eye Protection

Wear safety goggles if eye contact may occur (e.g. acc. to EN 166).

Skin and Body Protection

Hand Protection

Wear petroleum product resistant gloves (e.g. acc. to EN 420, EN 388, EN 374-2, EN 374-3).

Other Protective Measures

Wear protective clothing (e.g. acc. to EN 465) and other protection equipment. Wear appropriate gloves and special clothing to avoid frostbite. Protective clothes and equipment should be regularly inspected and maintained.

Special Hygienic Recommendations

Wash hands before breaks and after work.

8.2.3 Environmental Impact Control

To ensure the compliance of ventilation and process equipment with requirements of environmental legal acts, emissions of such equipment are subject to check ups.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	clear liquid at storage pressure, clear gas at ambient pressure.
b) Odour	unpleasant specific (merkaptane) odour due to its compounds.
d) pH	insignificant information.
e) Freezing point	below minus 138 ^{o}C.
f) Initial boiling point and boiling range	from minus 12 ^{o}C to 5 ^{o}C.
g) Flash point	below minus 60 ^{o}C.
h) Evaporation rate	no data.
i) Flammability (solid, gas)	no data.
j) Explosive concentration	1,6–9,7 % v/v in air (at 20^{o}C)
k) Vapour pressure	300–500 kPa manometric, at 40 ^{o}C
l) Vapour density	1,4–2,0 rel. to air
m) Relative density	570–600 kg/m^3 at 15 ^{o}C (at storage pressure)
n) Solubility(ies)	24–60 mg/l in water (at 20^{o}C)
o) Partition coefficient: n-octanol/water	no data.

p) Auto-ignition temperature > 325 °C.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
No hazardous reaction when handled and stored according to provisions.

10.2 Chemical stability
Stable at ambient temperature, hazardous polymerization reactions will not occur.

10.3 Possibility of hazardous reactions
No known hazardous reactions.

10.4 Conditions to Avoid
High ambient temperature. Avoid static electrical discharges and other ignition sources.

10.5 Incompatible materials
Avoid contact with strong oxidizing agents.

10.6 Hazardous Decomposition Products
Partial decomposition (incomplete combustion) will evolve smoke, carbon dioxide, and highly harmful carbon monoxide. Concentration of toxic gas in a confined space or premises may reach a hazardous limit.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Sources of Exposure
Product may enter organism when inhaled.

Toxicity
Acute or chronic effects are not characteristic to LPG hydrocarbons.

Acute Health Effects
After contact with eyes LPG (liquid state) may cause serious damage, and after contact with skin may cause cold burns or frostbite. In case of strong frostbite, blisters and obstinate burns may occur. Frostbite of large skin surfaces may cause serious health problems.
If swallowed in small doses may irritate respiratory tract, cause dizziness, nausea, weakness, headache and drowsiness. Large vapour amounts may disturb nervous system, cardiac and respiratory functions; may deplete oxygen content in air breathed and cause hypoxia, therefore, person may suffocate or lose consciousness in a very short time.

Chronic Health Effects
Repeated or long-term exposure to product vapours may result in various disorders: hypotonia, hyper-tiredness, insomnia, neurosis. Long-term product vapour contact with skin may cause dermatitis.
Carcinogenic or mutagenic affects and bio-accumulative potential are not characteristic to LPG.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
LPG hydrocarbons cause no long-term adverse affects in the aquatic and other environment.

12.2 Persistence and degradability
LPG hydrocarbons are not readily biodegradable.

12.3 Bioaccumulation Potential
Not bio-accumulative.

12.4 Mobility in Soil
Spillage, depending on the ambient temperatures, may evaporate in significant quantities, and the rest of the spilled product may penetrate into the soil.

12.5 Results of PBT and vPvB assessment
This substance no contains representative hydrocarbons structure were found to meet the PBT or vPvB.

SECTION 13: WASTE MANAGEMENT

13.1 Waste Disposal Methods
Waste is disposed of by decontamination in accordance with national requirements and local regulations or via a licensed waste disposal contractor. Identify the hazards and undertake required safety measures. Personal protective equipment is necessary for personnel involved in waste disposal.
Empty tanks may contain flammable product residue and therefore they should bear warning labels that would serve as guidelines for safe operation of storage tanks and safe waste disposal.
DO NOT weld, solder and repair in other ways the tanks without proper preparation.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number	1965
14.2 UN proper shipping name	UN 1965, HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S.
14.3 Transport hazard class(es)	2
14.4 Packing group	not applicable.
14.5 Environmental hazard	environmentally no hazardous.
14.6 Special precautions for users	not applicable.
14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	no data.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture Lithuanian:
Commission Regulation (EU) No. 2015/830; Commission Regulation (EU) No. 453/2010; Regulation (EC) No. 1907/2006 of the European Parliament and of the Council; Regulation (EC) No. 1272/2008 of the European Parliament and of the Council; Law on Chemical Substances and Preparations of the Republic of Lithuania (*Official Gazette (Valstybės Žinios)*, 2000, No. 36-987; 2004, No. 116-4329; 2005, No. 79-2846; 2006, No. 65-2381; 2008, No. 76-3000); Order No. 532 /742; 2010, Nr. 145-7434; 2010, Nr. 157-7967; 2012, Nr. 132-6648; Teisės aktų registras, Nr. 2015-11085); Law of the Republic of Lithuania on Packing and Packing Wastes Management (*Official Gazette*, 2001, No. 85-2968; 2005, No.86-3206; 2008, No.71-2699; 2011, Nr. 138-6526; 2012, Nr. 6-191; 2013, Nr. 110-5429; 2013, Teisės aktų registras, Nr. 2014-00038; Nr. 2014-05579; Nr. 2016-00088); Lithuanian Hygienic Norm HN 23:2011 „Concentration Limit Values of

Hazardous Chemicals in Working Environment Air. General Requirements" (*Official Gazette*, 2011, Nr. 38-1804) approved by Order No. V-824/A1-389 of the Minister of Health Care and the Minister of Social Security and Labour of the Republic of Lithuania on 1 September 2011.

15.2 Chemical Safety Assessment
Liquefied petroleum gas chemical safety assessment has been conducted.

SECTION 16: OTHER INFORMATION

The Material Safety Data Sheet has been reviewed and the data therein were revised and laid out according the requirements of the Commission Regulation (EU) No. 2015/830.

Abbreviations and acronyms

CAS	Chemical Abstracts Service
EC No	EINECS and ELINCS Number
EN	European Standard
EU	European Union
PBT	Persistent, Bioaccumulative and Toxic substance
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation
UN	United Nations
vPvB	Very Persistent and Very Bioaccumulative

Hazard statements:
H220: Extremely flammable gas.
H280: Contains gas under pressure, may explode if heated.

Precautionary statements:
P102: Keep out of reach of children.
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 sources of ignition if safe to do so.
P410+P403: Protect from sunlight. Store in a well ventilated place.

Do not use liquefied petroleum gas for purposes other than indicated in the manufacturer's information. During such use the user may be exposed to unforeseen hazards.

Should you have any questions or doubts regarding the MSDS, its contents or other issues related to the material safety, please contact us at the address: *info@orlenlietuva.lt*

NOTE: Information provided herein is considered to be accurate as of the date specified below. No warranty is made as to the accuracy or completeness of the data and information provided in this data sheet. Information provided herein serves only as guidelines for safe work, use, processing, storage, and waste management. It cannot be considered as a warranty or quality certificate. This information applies only to specific material designated and may not be suitable for such material used in combination with any other materials or in any other manner not described in this document.
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