



Liquefied petroleum gas (LPG)

Safety Data Sheet

according to the federal final rule of hazard communication revised on 2012 (HazCom 2012)

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Version: 3.0

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

1.1. Product identifier

Product form : Substance
Trade name : Liquefied petroleum gas (LPG)
CAS No : 68476-85-7
Formula : Unspecified

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

Use of the substance/mixture : Distribution
Use as an intermediate
Formulation
Uses in coatings
Use as a fuel
Polymer processing
Polymer production

1.3. Details of the supplier of the safety data sheet

US office:
Braskem S.A.
5100 Westheimer Rd - Suite 495
Houston, 77056 - USA
Tel: 713 255 4747
Fax: 713 255 4740

Manufacturer:
Braskem S.A.
Rua Eteno, 1561
Polo Petroquímico de Camaçari
42810-000 – Camaçari – BA – Brasil
Tel. (55 71) 3413-1111 or 0800-71-5454

Braskem S.A.
BR 386 – Rodovia Tabai-Canoas, km 419
Via do Contorno, 850
95853-000 – Triunfo – RS – Brasil
Tel. 0800-541-4252

Braskem S.A.
Av. Presidente Costa e Silva, 1178 – Capuava
09270-001 – Santo André – SP – Brasil
Tel. (55 11) 4478-1777

1.4. Emergency telephone number

Emergency number : +55 0800-541-4252
+55 71 3413-1111
+55 11 4478-1777

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Simple Asphy H380
Flam. Gas 1 H220
Liquefied gas H280
Muta. 1B H340
Carc. 1A H350

Full text of H statements: see section 16

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2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: H220 - Extremely flammable gas
H280 - Contains gas under pressure; may explode if heated
H340 - May cause genetic defects
H350 - May cause cancer
H380 - May displace oxygen and cause rapid suffocation

Precautionary statements (GHS-US)

: P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking
P280 - Wear eye protection, protective gloves
P308+P313 - If exposed or concerned: Get 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
P403 - Store in a well-ventilated place
P405 - Store locked up
P410+P403 - Protect from sunlight. Store in a well-ventilated place
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

other hazards which do not result in classification

: Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level. Gas/air mixtures are explosive. High concentrations may cause asphyxiation. Risk of ignition at all temperatures. Risk of rapid formation of explosive mixtures when combined with air.

2.4. Unknown acute toxicity (GHS US)

Not applicable.

SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type

: Multi-constituent

Name	Product identifier	%	GHS-US classification
Petroleum gases, liquefied (Main constituent)	(CAS No) 68476-85-7	100	Simple Asphy, H380 Flam. Gas 1, H220 Liquefied gas, H280 Muta. 1B, H340 Carc. 1A, H350

Full text of H-statements: see section 16

Synonym: Petroleum gases, liquefied; butane-propane mixtures

3.2. Mixture

Not applicable

4.1. Description of first aid measures

First-aid measures after inhalation

: Remove casualty to fresh air and keep warm and at rest. In case of irregular breathing or respiratory arrest provide artificial respiration. In case of breathing difficulties administer oxygen. Seek medical advice (show the label where possible).

First-aid measures after skin contact

: After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water and soap. Seek medical advice (show the label where possible). May cause frostbite. Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

First-aid measures after eye contact

: Rinse immediately and plentifully with water, also under the eyelids, for at least 20 minutes. Contact with the product may cause cold burns or frostbite. Seek medical advice (show the label where possible).

First-aid measures after ingestion

: Unlikely route of exposure.

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

Symptoms/injuries

: May cause genetic defects. May cause cancer.

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Symptoms/injuries after inhalation	: Asphyxiant in high concentrations. Excessive concentrations may cause nervous system depression, headache, and weakness leading to unconsciousness.
Symptoms/injuries after skin contact	: May cause frostbite on contact with the liquefied gas.
Symptoms/injuries after eye contact	: May cause frostbite on contact with the liquefied gas.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Dry powder. Carbon dioxide (CO ₂). Water mist.
Unsuitable extinguishing media	: Do not use a water jet since it may cause the fire to spread.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: Extremely flammable gas. Risk of ignition at all temperatures. Risk of rapid formation of explosive mixtures when combined with air. Heavier than air, vapors may travel long distances along ground, ignite and flash back to source. On burning: release of (highly) toxic gases/vapors.
Explosion hazard	: Contains gas under pressure; may explode if heated.
Reactivity	: The product is non-reactive under normal conditions of use, storage and transport.

5.3. Advice for firefighters

Firefighting instructions	: Cut off the gas flow and then apply extinguishing agents. Do not approach fire except upwind and only with proper skin and respiratory protection (supplied air only). Cool closed containers exposed to fire with water spray.
Protective equipment for firefighters	: Wear a self-contained breathing apparatus. Full protective flameproof clothing.
Other information	: Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. Risk of suffocation due to oxygen deficiency in confined areas.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Do not allow the product to be released into the environment. Reduce vapor with fog or fine water spray. Gas or vapor heavier than air. Mechanically ventilate the spillage area.
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6.1.1. For non-emergency personnel

Protective equipment	: Personal protective equipment. For further information refer to section 8: Exposure-controls/personal protection.
Emergency procedures	: Evacuate unnecessary personnel. Inform the public about the hazard and give advice to keep upwind. Eliminate all sources of ignition, avoid sparks, flames and do not smoke in risk area. Do not transfer under air or oxygen pressure. Containers must be properly grounded before beginning transfer. Use explosion-proof electrical equipment. Do not breathe fumes from fires or vapors from decomposition. Self-contained breathing apparatus. Wear suitable protective clothing. Gloves. Prevent the product from entering drains or confined areas. Risk of suffocation due to oxygen deficiency in confined areas.

6.1.2. For emergency responders

Protective equipment	: Use personal protective equipment as required. For further information refer to section 8: Exposure-controls/personal protection.
Emergency procedures	: Evacuate unnecessary personnel. Inform the public about the hazard and give advice to keep upwind. Eliminate all sources of ignition, avoid sparks, flames and do not smoke in risk area. Do not transfer under air or oxygen pressure. Containers must be properly grounded before beginning transfer. Do not breathe fumes from fires or vapors from decomposition. Wear suitable protective clothing. Gloves. Prevent the product from entering drains or confined areas. Risk of suffocation due to oxygen deficiency in confined areas. Use explosion-proof ventilating equipment.

6.2. Environmental precautions

Stop leak if safe to do so. Avoid contact with skin. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	: Prevent the product from reaching inhabited areas. Control the vapors with a fine water spray. Vapors are heavier than air and may spread along floors. Mechanically ventilate the spillage area.
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- Methods for cleaning up : Prevent the product from reaching inhabited areas. Use water spray to disperse the vapors. Vapors are heavier than air and may spread along floors. Mechanically ventilate the spillage area. Use only non-sparking tools. Take precautionary measures against static discharge.

6.4. Reference to other sections

For further information refer to section 8: Exposure-controls/personal protection. For disposal of residues refer to section 13: Disposal considerations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Obtain special instructions before use. Avoid ignition sources. No smoking. Do not use compressed air to transfer, discharge or transport the product. Wear suitable gloves. Keep away from open flames, hot surfaces and sources of ignition.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practices. Do not eat, drink or smoke in areas where product is used.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Provide local exhaust or general room ventilation. Use grounded electrical/mechanical equipment. Use explosion-proof lighting equipment. Use explosion-proof ventilating equipment. Use only non-sparking tools. Ventilation along the floor.
- Storage conditions : Store, if possible, in a cool, well ventilated place away from incompatible materials. Store in dry, cool, well-ventilated area. Keep container tightly closed. Keep away from open flames, hot surfaces and sources of ignition.
- Incompatible materials : Oxidizing agents. Nickel. Aluminum. Carbonyl. Halogens. Acids.
- Storage area : Keep away from open flames, hot surfaces and sources of ignition. Keep the container tightly closed. Store in dry, cool, well-ventilated area. Do not store near oxidizing agents. Use explosion-proof lighting equipment. Use explosion-proof ventilating equipment.
- Packaging materials : Stainless steel.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Liquefied petroleum gas (LPG) (68476-85-7)		
ACGIH	Remark (ACGIH)	Asphyxia
OSHA	OSHA PEL (TWA) (mg/m³)	1800 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

8.2. Exposure controls

- Appropriate engineering controls : Provide local exhaust or general room ventilation. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Handle in accordance with good industrial hygiene and safety procedures. Use explosion-proof lighting equipment. Use explosion-proof ventilating equipment.
- Hand protection : Protective gloves made of PVC.
- Eye protection : Safety glasses with side shields.
- Skin and body protection : PVC (Polyvinyl chloride). Wear suitable protective clothing, gloves and eye/face protection. Boots.
- Respiratory protection : An approved organic vapor respirator/supplied air or self-contained breathing apparatus must be used when vapor concentration exceeds applicable exposure limits. Self-contained breathing apparatus.
- Thermal hazard protection : Wear cold insulating gloves and either face shield or eye protection.
- Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state : Gas
- Appearance : Liquefied gas.
- Color : colorless
- Odor : odorless
- Odor threshold : No data available
- pH : Not applicable

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Relative evaporation rate (butyl acetate=1)	: Not available
Melting point	: No data available
Freezing point	: -169 °C
Boiling point	: -42 to 0 °C
Flash point	: -104 to 60 °C
Auto-ignition temperature	: 490 °C
Decomposition temperature	: Not available
Flammability (solid, gas)	: Extremely flammable gas
Vapor pressure	: 107 - 730 kPa
Relative vapor density at 20 °C	: 1.5 - 2.1
Relative density	: No data available
Density	: 0.49 - 0.57
Solubility	: Practically insoluble in water. Slightly soluble in acetone, practically insoluble in chloroform, benzene, ethanol.
Log Pow	: Not available
Log Kow	: No data available
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: Not applicable
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: 1.9 - 9.5 vol %

9.2. Other information

Gas group	: Liquefied gas
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SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Extremely flammable gas. Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid ignition sources. Avoid static electricity discharges. Incompatible materials.

10.5. Incompatible materials

Oxidizing agents. Nickel (Ni). Aluminum. Carbonyl. Halogens. Acids.

10.6. Hazardous decomposition products

Incomplete combustion releases dangerous carbon monoxide, carbon dioxide and other toxic gases.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified
Skin corrosion/irritation	: Not classified
	pH: Not applicable
Serious eye damage/irritation	: Not classified
	pH: Not applicable
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: May cause genetic defects.
Carcinogenicity	: May cause cancer.
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified

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Symptoms/injuries after inhalation	: Asphyxiant in high concentrations. Excessive concentrations may cause nervous system depression, headache, and weakness leading to unconsciousness.
Symptoms/injuries after skin contact	: May cause frostbite on contact with the liquefied gas.
Symptoms/injuries after eye contact	: May cause frostbite on contact with the liquefied gas.

SECTION 12: Ecological information

12.1. Toxicity

No additional information available

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

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Log Pow	Not available
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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on ozone layer	: No additional information available
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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations.
Additional information	: Non-recyclable empty containers must be destroyed and forwarded to re-melting in authorized installations. Containers remain hazardous when empty. Continue to observe all precautions.

SECTION 14: Transport information

Classification for LAR transport: DOT

UN Number	: UN1075
Proper Shipping Name	: Petroleum gases, liquefied
Class	: 2.1
Packing group	: Not applicable
Reportable quantity	: Not applicable

Classification for SEA transport: IMO - IMDG

UN Number	: UN1075
Proper Shipping Name	: PETROLEUM GASES, LIQUEFIED
Class	: 2.1
Packing group	: Not applicable
Marine Pollutant	: Not considered as marine pollutant based on available data

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code:

Product Name	: Consult IMO guidelines before transporting in bulk
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Classification for AIR transport: IATA - ICAO

UN Number	: UN1075
Proper Shipping Name	: Petroleum gases, liquefied
Class	: 2.1
Packing group	: Not applicable

This information does not intend to convey all specific regulatory or operational requirements/information relating to the product therefore it cannot be considered exhaustive. Consult US DOT, IMO and ICAO regulations before transporting the product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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SECTION 15: Regulatory information

15.1. US Federal regulations

Liquefied petroleum gas (LPG) (68476-85-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Liquefied petroleum gas (LPG) (68476-85-7)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class A - Compressed Gas
Class B Division 1 - Flammable Gas

EU-Regulations

Liquefied petroleum gas (LPG) (68476-85-7)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

15.2.2. National regulations

Liquefied petroleum gas (LPG) (68476-85-7)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on INSQ (Mexican national Inventory of Chemical Substances)

15.3. US State regulations

No additional information available

SECTION 16: Other information

Sources of Key data : Data arise from reference works and literature.
Revision Date : December 17, 2015
Abbreviations and acronyms : ACGIH - American Conference of Government Industrial Hygienists
OSHA - Occupational Safety and Health Administration
PEL- Permissible Exposure Level
TWA- Time Weighted Average

Full text of H-statements:

-----	H220	Extremely flammable gas
-----	H280	Contains gas under pressure; may explode if heated
-----	H340	May cause genetic defects
-----	H350	May cause cancer
-----	H380	May displace oxygen and cause rapid suffocation

Braskem - SDS US

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. It warns that the handling of any chemical substance requires the previous knowledge of its hazards for the user. It is up to the user of the product company providing this SDS to and promote the training of its employees about possible risks come upon of the product. The information contained herein is not absolute, but only general information on the use of the chemical and indication of safety and security measures.