

SAFETY DATA SHEET

Product: GLP (propano/butano)

Revision: 02

Date: 06/13/2024

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1 - IDENTIFICATION

GHS Product identifier:	GLP (propano/butano)
Other means of identification:	GLP610
Recommended use of the chemical:	Fuel.
Specific restrictions on use:	There are not known restrictions on use.
Supplier`s details:	<p>Acelen</p> <p>Address: ROD BA 523, KM 4, MATARIPE, CEP: 43900-000 - BA - Brasil.</p> <p>Phone number: (71) 3511-8000 / (11) 5225-8900</p>
Emergency phone number:	EMERGENCIall: 0800 729 2756 / (11) 94759-7282 (Whatsapp) (24h)

2 - HAZARD IDENTIFICATION

Classification of the substance or mixture:	<p>Flammable gases - Category 1A;</p> <p>Gases Under Pressure - Liquefied;</p> <p>Germ Cell Mutagenicity - Category 1B;</p> <p>Carcinogenicity - Category 1A.</p>
Classification system adopted:	Globally Harmonized System of Classification and Labeling of Chemicals (GHS), United Nations.

GHS label elements, including precautionary statements

Pictograms:



Signal word:	DANGER
Hazard statement(s):	<p>H220 Extremely flammable gas.</p> <p>H280 Contains gas under pressure; may explode if heated.</p> <p>H340 May cause genetic defects.</p> <p>H350 May cause cancer.</p>
Precautionary statement(s):	<p>PREVENTION:</p> <p>P203 Obtain, read and follow all safety instructions before use.</p> <p>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</p> <p>P222 Do not allow contact with air.</p> <p>P280 Wear protective gloves, protective clothing, eye protection, face protection and hearing protection.</p> <p>RESPONSE TO EMERGENCY:</p> <p>P318 IF exposed or concerned, get medical advice.</p> <p>P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.</p> <p>P381 In case of leakage, eliminate all ignition sources.</p> <p>STORAGE:</p> <p>P403 Store in a well-ventilated place.</p>

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P405 Store locked up.
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

DISPOSITION:

P501 Dispose of contents and container in accordance with local regulations.

Other hazards which do not result in classification: The product has no other hazards.

3 - COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE

Common chemical name: Petroleum gases, liquefied.

Common name(s), synonym(s) of the substance: LPG; Fuels, liquefied petroleum gas.

CAS: 68476-85-7

Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance: Does not contain components that contribute to the hazard.

4 - FIRST-AID MEASURES

Description of necessary first-aid measures

Inhalation: The gases can cause dizziness or suffocation. Remove victim to fresh air and keep in a position that does not obstruct breathing. Monitor respiratory function. If victim is breathing hard, give oxygen. If necessary, apply artificial respiration. Consult a doctor. Bring this document.

Skin: In case of contact of the product in pressurized form with the skin, injury or frostbite may occur. Immediately wash exposed skin with sufficient amount of water. Clothes that adhere to the skin should be thawed with warm water before being removed. Consult a doctor. Bring this document.

Eye: In case of contact of the product in pressurized form with the eyes, injury or frostbite may occur. Immediately flush eyes with sufficient amount of water, keeping eyelids open. If wearing contact lenses, remove them if it is easy. Keep rinsing. Consult a doctor. Bring this document.

Ingestion: Not applicable.

Most important symptoms/effects, acute and delayed: No symptoms and effects are expected after exposure to the material.

Indication of immediate medical attention and special treatment needed, if necessary: Avoid contact with the product when helping the victim. If necessary, symptomatic treatment should include, above all, supportive measures such as correction of hydro electrolytic and metabolic disorders and respiratory assistance. In case of skin contact, do not rub the affected area.

5 - FIRE-FIGHTING MEASURES

Extinguishing media: Appropriate: carbon dioxide (CO₂), water mist and dry chemical powder.

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Specific hazards arising from the chemical:	Inappropriate: water directly onto the burning material. Combustion of the material or its packaging can form irritating and toxic gases such as carbon monoxide and dioxide. Very dangerous when exposed to excessive heat or other sources of ignition such as: sparks, open flames or flames from matches and cigarettes, welding operations, pilot lights and electric motors. Gases can be denser than air and can accumulate in low-lying or confined areas such as storm drains and basements. It can travel great distances causing the flame to retreat or new fires in both open and confined environments. Containers may explode if heated.
Special protective actions for fire-fighters:	Do not extinguish fire on gas leaks unless the leak can be contained. If the load is involved in fire, isolate and evacuate the area to a minimum radius of 1600 meters. Wear positive pressure self-contained breathing apparatus (SCBA) and full protective clothing. Containers and tanks involved in the fire must be cooled with water mist.

6 - ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	Isolate the leakage from sources of ignition. Keep unauthorized persons out of the area and away from windows. Stop the leakage if it can be done without risk. Prevent sparks or flames. Do not smoke. Do not touch damaged containers or spilled product without proper clothing. Avoid exposure to the product. Stay in a safe place, with the wind at your back. Use personal protective equipment as described in section 8.
For emergency responders:	Wear complete PPE with safety glasses, safety gloves, suitable protective clothing and closed shoes. In case of leakage, where exposure is high, it is recommended to use a suitable respiratory protection mask.
Environmental precautions:	Avoid that the spilled product reaches waterways or sewage system.
Methods and materials for containment and cleaning up:	Release the content slowly into the atmosphere. Stay downwind. Do not pour water directly into the leakage point. All equipment used in handling must be electrically grounded. Due to the dispersion of the product in the environment, it is recommended that the area be ventilated until the release the place. For final disposal, proceed according to Section 13 of this document.

7 - HANDLING AND STORAGE

Precautions for safe handling

Precautions for safe handling:	Handle in a well-ventilated area or with a general local exhaust/ventilation system. Avoid formation of gases and aerosols. Avoid exposure to product as effects may not be felt immediately. Use personal protective equipment as described in section 8. Avoid contact with incompatible materials.
General hygiene:	Wash hands and face thoroughly after handling and before eating, drinking, smoking or going to the bathroom. Contaminated clothing should be changed and washed before reuse. Remove clothing and protective equipment contaminated before entering eating areas.

Conditions for safe storage, including any incompatibilities

Technical measures for prevention of fire and explosion:	Keep away from heat, sparks, open flames and hot surfaces. - Do not smoke. Keep container tightly closed. Ground the container vessel and the receiver of the product during transfers. Only use anti-sparking tools. Avoid the accumulation of electrostatic charges. Use electrical equipment, ventilation and lighting explosion proof. Use personal protective equipment as described in Section 8.
Conditions for safe storage, including any incompatibilities:	Store in a well ventilated place, away from sunlight. Keep container closed. Keep away from high temperatures and ignition sources. Keep stored at room temperature not exceeding 35°C. It is not necessary addition of stabilizers and antioxidants to ensure the durability. This material may react dangerously with some incompatible materials as outlined in Section 10. Keep away from incompatible materials.

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Packaging compatibilities:	Store in horizontal steel and carbon cylinders at room temperature and pressure of 15 Kg/cm ² , in ventilated areas, away from flames and sources of ignition.
Inadequate packaging materials:	There are not known unsuitable material.

8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational exposure limit:	The values below apply to workplaces. OSHA - PEL - TWA: 1000 ppm (1800 mg/m ³) (29 CFR 1910.1000 Table Z-1) (CFR); NIOSH - REL - TWA: 1000 ppm (1800 mg/m ³); ACGIH - TLV - TWA: (AF; D; EX). D: Simple asphyxiant; EX: Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV® could approach 10% of the lower explosive limit; AF: See Appendix F: Minimal Oxygen Content. CFR: See mentioned item in OSHA CFR.
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Biological limit:	Not established.
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Other limits and values:	Not established.
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Appropriate engineering controls:	Promote mechanical ventilation and exhaust system to outside. These acts help reducing the exposition to the product. Maintain atmospheric concentrations of product constituents below the indicated occupational exposure limits. Maintain atmospheric concentrations of the constituents of the material below occupational exposure limits indicated.
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Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection:	Wide-view glasses with splash protection.
Skin protection:	Fireproof and anti-static protective clothing. Protective gloves against chemicals such as PVC.
Respiratory protection:	Use of respirator with filter against vapors and organic mists is recommended for average exposures above half the TLV-TWA. In cases where exposure exceeds 3 times the TLV-TWA value, use a self-contained, full facepiece, air-supplied respirator (SCBA) operated in positive pressure mode. Follow guidance from the Respiratory Protection Program (PPR), 4th ed. São Paulo: Fundacentro, 2016.
Thermal hazards:	It does not present thermal hazards.

9 - PHYSICAL AND CHEMICAL PROPERTIES

Aspect:	Gas.
Color:	Colorless.
Odour:	Odorless.
Melting point/freezing point:	-187.6 to -138.3 °C (-305.68 to -216.94 °F).
Boiling point or initial boiling point and boiling range:	-161.48 to -0.5 °C (-258.664 to 31.1 °F).
Flammability:	Flammable.

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Lower and upper explosion limit/flammability limit:	Upper: 15 % and Lower: 1.8 %.	
Flash point:	> -104 °C (-155.2 °F) - Closed cup.	
Auto-ignition temperature:	287 to 537 °C (548.6 to 998.6 °F).	
Decomposition temperature:	Not available.	
pH:	Not available.	
Kinematic viscosity:	Not available.	
Solubility(ies):	Immiscible in water (24.4 to 60.4 mg/L (24400 to 60400 mg/m ³)).	
Partition coefficient n-octanol/water (log value):	log <i>K</i> _{ow} : 1.09 to 2.8.	
Vapour pressure:	< 1430 kPa at 37.8 °C (100.04 °F).	
Relative vapour density:	1.45 to 2 (air = 1).	
Density and/or relative density:	Absolute density: 0.58 kg/m ³ at 20 °C (68 °F).	
Particle characteristics:	Not applicable.	
Other information:	Volatile part: 100% (v/v).	

10 - STABILITY AND REACTIVITY

Reactivity:	Reactivity is not to be expected under normal conditions of temperature and pressure.
Chemical stability:	Stable product under normal conditions of temperature and pressure.
Possibility of hazardous reactions:	The combination of nickel, carbonyl, oxygen and n-butane results in an explosion at temperatures between 20 and 40°C. Forms explosive mixtures with air and oxidizing agents. Spontaneously explosive in chlorinated sunlight.
Conditions to avoid:	Elevated temperatures. Ignition sources. Contact with incompatible materials.
Incompatible material:	Chlorine, hydrogen chloride, hydrogen fluoride and strong oxidizing agents.
Hazardous decomposition products:	Carbon monoxide and dioxide.

11 - TOXICOLOGICAL INFORMATION

Acute toxicity:	Product not classified as acute toxic by inhalation. LC ₅₀ Vapours (rats, 4h): > 20 mg/L.
Skin corrosion/irritation:	Not classified for skin corrosion/irritation. The contact of the product in pressurized form with the skin, may occur freezing burn (frostbite).
Serious eye damage/irritation:	Not classified for serious eye damage/eye irritation. The contact of the product in pressurized form with eyes, may occur freezing burn (frostbite).
Respiratory or skin sensitization:	It is not expected to present respiratory or skin sensitization.

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Germ cell mutagenicity: May cause genetic defects.

Carcinogenicity: May cause cancer.

Reproductive toxicity: It is not expected to be reproductively toxic.

STOT - Single exposure: It is not expected to exhibit specific target organ toxicity by single exposure.

STOT - Repeated exposure: It is not expected to exhibit specific target organ toxicity on repeated exposure.

Aspiration hazard: It is not expected to present an aspiration hazard.

12 - ECOLOGICAL INFORMATION

Toxicity: It is not expected to be ecotoxic.

Persistence and degradability: It has no persistence and is considered rapidly degradable.

Bioaccumulative potential: Presents low bioaccumulative potencial in aquatic organisms.
log K_{ow} : 1.09 to 2.8.

Mobility in soil: Not determined.

Other adverse effects: No other environmental effects known.

13 - DISPOSAL CONSIDERATIONS

Disposal methods

Must be disposed of as waste in compliance with local regulations. The treatment and disposal should be evaluated for each specific product.

Keep the product remains in its original and properly closed containers. Disposal should be performed as established for the product.

14 - TRANSPORT INFORMATION

Road: UN - United Nations: Model Regulations:
• Recommendations on the Transport of Dangerous Goods.

UN number: 1075

Proper shipping name: PETROLEUM GASES, LIQUEFIED

Primary risk class or division: 2.1

Subsidiary risk class or division: NA

Packing group: NA

Environmental hazards: The product is not considered dangerous for the environment for land transport.

Railway regulations: COTIF - Convention concerning International Carriage by Rail:
• Appendix C: RID - Regulations concerning the International Carriage of Dangerous Goods by Rail.

UN number: 1075

Proper shipping name: PETROLEUM GASES, LIQUEFIED

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Primary risk class or division:	2.1
Subsidiary risk class or division:	NA
Packing group:	NA
Environmental hazards:	The product is not considered dangerous for the environment in rail transport.
Sea:	IMO - International Maritime Organization: • IMDG Code - International Maritime Dangerous Goods Code.
UN number:	1075
Proper shipping name:	PETROLEUM GASES, LIQUEFIED
Primary risk class or division:	2.1
Subsidiary risk class or division:	NA
Packing group:	NA
Environmental hazards:	It's not considered a marine pollutant for transportation.
EmS:	<u>F-D,S-U</u>
Air:	IATA - International Air Transport Association: • DGR - Dangerous Goods Regulation.
UN number:	1075
Proper shipping name:	PETROLEUM GASES, LIQUEFIED
Primary risk class or division:	2.1
Subsidiary risk class or division:	NA
Packing group:	NA
Environmental hazards:	The product is not considered dangerous for the environment for air transport.
Special precautions for user:	Not applicable.
Maritime transport in bulk according to IMO instruments:	Consult regulations: • International Maritime Organization: MARPOL: Articles, protocols, annexes, unified interpretations of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, consolidated edition. IMO, London, 2006; • International Maritime Organization: IBC code: International code for the construction and equipment of shipping carrying dangerous chemicals in bulk: With Standards and guidelines relevant to the code. IMO, London, 2007.

15 - REGULATORY INFORMATION

Convention concerning Safety in the use of Chemicals at Work (Convention 170) - International Labour Organization, 1990.

In accordance with Globally Harmonized System of Classification and Labelling of Chemicals (GHS)- Chapter 1.5 and Annex 4

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16 - OTHER INFORMATION

This document was prepared based on current knowledge about the proper product handling and under normal conditions of use, in accordance with the application specified on the packaging. Any other use of the product involving their combination with other products, and use various forms of those indicated, are the responsibility of the user. Warns that the handling of any chemical substance requires the prior knowledge of its hazards for the user. In the workplace it is for the user company's product promotes training of its collaborators about the possible risks arising from exposure to the chemical.

Change control:

Version	Manufacture date	Changes
02	11/30/2023	Change in section: 2 and 11.

Abbreviations:

ACGIH - American Conference of Governmental Industrial Hygienists;
 CAS - Chemical Abstracts Service;
 EC - European Community;
 EEC - European Economic Community;
 IARC - International Agency for Research on Cancer;
 K_{ow} - Octanol-water partition coefficient;
 LC₅₀ - Lethal Concentration 50%;
 NIOSH - National Institute for Occupational Safety and Health;
 OSHA - Occupational Safety & Health Administration;
 PEL - Permissible Exposure Limit;
 REL - Recommended Exposure Limit;
 TLV - Threshold Limit Value;
 TWA - Time Weighted Average;
 UN - United Nations.

Bibliographic references:

ACGIH - AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIALS HYGIENISTS. TLVs® and BEIs®: Based on the Documentation of the Threshold Limit Values (TLVs®) for Chemical Substances and Physical Agents & Biological Exposure Indices (BEIs®). Cincinnati-USA, 2023.

ECHA - EUROPEAN CHEMICAL AGENCY. Available at: < <http://echa.europa.eu/web/guest> >. Access in: Nov. 2023.

GESTIS - SUBSTANCE DATABASE. Available at: < [http://gestis-en.itrust.de/nxt/gateway.dll/gestis_en/000000.xml?f=templates\\$fn=default.htm\\$3.0](http://gestis-en.itrust.de/nxt/gateway.dll/gestis_en/000000.xml?f=templates$fn=default.htm$3.0) >. Access in: Nov. 2023.

GHS - GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS. 10th rev. ed. New York and Geneva: United Nations, 2023.

HSDB - HAZARDOUS SUBSTANCES DATA BANK. Available at: <http://pubchem.ncbi.nlm.nih.gov/>. Access in: Nov. 2023.

IARC - INTERNATIONAL AGENCY FOR RESEARCH ON CANCER. Available at: <http://monographs.iarc.fr/ENG/Classification/index.php>. Access in: Nov. 2023.

IPCS - INTERNATIONAL PROGRAMME ON CHEMICAL SAFETY - INCHEM. Available at: <http://www.inchem.org/>. Access in: Nov. 2023.

IUCLID - INTERNATIONAL UNIFORM CHEMICAL INFORMATION DATABASE. [S.1.]: European chemical Bureau. Available at: <http://ecb.jrc.ec.europa.eu>. Access in: Nov. 2023.

In accordance with Globally Harmonized System of
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and Annex 4

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REACH - REGISTRATION, EVALUATION, AUTHORIZATION AND RESTRICTION OF CHEMICALS. Commission Regulation (EC) No 1272/2008 of December 2008 amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals. Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:353:0001:1355:en:PDF> >. Access in: Nov. 2023.

TOXNET - TOXICOLOGY DATA NETWORKING. ChemIDplus Lite. Available at: <http://chem.sis.nlm.nih.gov/>. Access in: Nov. 2023.