

Product	LIQUEFIED PETROLEUM GAS PROPANE - BUTANE MIXTURE, PROPANE- RICH MIXTURE, AUTOGAS	Date:	2018/2/20
		Edition:	9

1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1. Product identifier

- Trade name: LIQUEFIED PETROLEUM GAS PROPANE - BUTANE MIXTURE, PROPANE-RICH MIXTURE, AUTOGAS
- Chemical name: Hydrocarbons, C₃-C₄
- Index no.: 649-199-00-1
- EC no.: 270-681-9
- CAS no.: 68476-40-4
- Registration No.: 01-2119486557-22-0009
- Product code: 1000036; 1000619; 1000620; 1960000; 1960002; 1960004; 1960005; 1960007; 1960009; 1960020; 1002221

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

- Relevant identified uses: Industrial: manufacture of substance, use as a fuel
Professional: use as a fuel
Consumer: use as a fuel
- Uses advised against: The uses that are in the list above are relevant. Other uses are not recommended unless an assessment that proves that the related risks are controlled has been conducted before starting that use.

1.3. Details of the supplier of the safety data sheet

- Manufacturer/supplier: **INA-Industrija nafte, d.d.**
- Address: Av. Većeslava Holjevcica 10
pp 555, 10002 Zagreb, HRVATSKA
- Phone: 00-385-1-6450-842 / 00-385-1-6451-075 (24 h)
- Fax: 00-385-1-6452-050
- e-mail: sds@ina.hr
- Responsible person: **SD & HSE**
Mirela Mavrinac, B.Sc. Tel. 00-385-1-6450-803
Hrvoje Raukar, B.Sc.

1.4. Emergency Telephone Number

- Emergency Service Telephone Number: **112**
National Protection and Rescue Directorate
Nehajska 5, 10000 Zagreb
e-mail: info@duzs.hr
00-385-1-3650-011
00-385-1-3650-084
00-385-1-3650-082
00-385-1-3650-083
- Medical Information Telephone Number: **00-385-1-23-48-342**

Product	LIQUEFIED PETROLEUM GAS PROPANE - BUTANE MIXTURE, PROPANE- RICH MIXTURE, AUTOGAS	Date: 2018/2/20
		Edition: 9

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

2.1.1. Classification according to Regulation (EC) No 1272/2008 (CLP/GHS):

Press. Gas; H280

Flam. Gas 1; H220

2.2. Substance or mixture labelling

2.2.1. Labelling according to Regulation (EC) No 1272/2008 (CLP/GHS)

Hazard pictograms:



GHS04 GHS02

Signal word: **Danger**

Hazard statements (H):	H220	Extremely flammable gas
	H280	Contains gas under pressure; may explode if heated.
Precautionary statements (P):	P102	(Only if sold to the general public): Keep out of reach of children.
	P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
	P381	In case of leakage, eliminate all ignition sources.
	P410+P403	Protect from sunlight. Store in a well-ventilated place.

2.3. Other hazards

Note K – The classification as carcinogen or mutagen need not to apply if it can be shown that the substance contains less than 0,1 % w/w 1,3 butadiene.

Product	LIQUEFIED PETROLEUM GAS	Date:	2018/2/20
	PROPANE - BUTANE MIXTURE, PROPANE-RICH MIXTURE, AUTOGAS	Edition:	9

3. COMPOSITION / INFORMATION ON INGREDIENTS

-Substance:	X		Mixture:		
- Components contributing to product hazardousness:					
Substance name	Substance identification			[%]	Classification according to Regulation (EC) No 1272/2008 (CLP/GHS)
	CAS no.	EC no.	Registration no. (REACH)		
Hydrocarbons, C ₃ -C ₄	68476-40-4	270-681-9	01-2119486557-22-0009	≤ 100	Press. Gas, H280 Flam. Gas 1, H220

4. FIRST AID MEASURES

- General information: Before administering first aid to the affected persons, isolate the accident area from sources of ignition, including the disconnection from the power supply. Before entering the enclosed space, check the atmosphere and provide ventilation due to the risk of elevated H₂S and CO concentrations. Use personal protective equipment (see Section 8)

- First aid procedures

- after inhalation: Remove the affected person from the contaminated area to fresh air. In the case of dizziness, nausea, headache and persisting difficulties, immediately seek medical attention. In case of unconsciousness, move the affected person to hospital in lateral position, ensuring clear airways. In case of difficulty breathing or respiratory arrest, open the airways, start with resuscitation (heart massage and artificial respiration) and immediately seek medical attention.
- after skin contact: Frostbite can occur. Do not remove clothing from the area of the frostbite, do not rub, massage or apply pressure to the damaged skin surface. Rinse the affected area with plenty of water for 15 minutes. Immediately seek medical attention.
- after eye contact: Frostbite can occur. Remove contact lenses. Rinse the eyes with water at least 15 minutes. Immediately seek medical attention.
- after ingestion: Not considered a possible route of exposure. Frostbite on the lips and in the mouth can occur during contact with the product.

- Note to person administering first aid/ physician: Administering oxygen only by trained medical personnel.

Product	LIQUEFIED PETROLEUM GAS	Date:	2018/2/20
	PROPANE - BUTANE MIXTURE, PROPANE-RICH MIXTURE, AUTOGAS	Edition:	9

5. FIRE FIGHTING MEASURES

- Extinguishing media

- SUITABLE: Large fires: Water spray, water mist or air foam (for plashes of LPG).
Small fires: Dry powder or CO₂ or air foam (for plashes of LPG).

- NOT SUITABLE: Water jet, simultaneous use of water and foam.

- **Firefighting measures for special hazards:** Stop product leakage if it can be done in a safe manner, if not, leave the product to burn out and cool the containers and surroundings with water spray.

- **Special firefighting measures:** Use water spray or foam to cool the fire site, containers and tank trucks. Close gas valves and outlets.

- **Special fire fighter protective equipment:** Wear protective clothing for firefighters (intervention suit) in accordance with HRN EN 469 and a self-contained open-circuit compressed air breathing apparatus in accordance with HRN EN 137.

- **Special hazards arising from the substance or mixture:** The vapours are heavier than air and may spread further from the place of accident and cause an explosion and fire. Smoke containing CO, CO₂ may occur with the incomplete combustion of hydrocarbons.

- **Advice for firefighters:** No data available.

- **Additional information:** Product combustion generates asphyxiant fumes and toxic gases (CO and CO₂).

6. ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Use personal protective equipment (see Section 8).

- **Environmental precautions:** Prevent spreading of the product if it can be performed in a safe manner. Prevent leakage into drains.
Provide ventilation. The product shall rapidly evaporate if an accidental discharge into the water occurs. Isolate the discharge area.

- **Methods for cleaning-up and recovery:** Ventilate the discharge area and allow the product to evaporate.

- **Additional warnings:** Discharged liquid soon turns into a gas and forms explosive mixture with air! When the concentration drops below explosion limits at the point of escape, initiate intervention.

Displays characteristics of cryogen liquid. Many materials in contact with cooling – cryogen liquid become brittle and crack. May cause frostbites.

Product	LIQUEFIED PETROLEUM GAS	Date:	2018/2/20
	PROPANE - BUTANE MIXTURE, PROPANE-RICH MIXTURE, AUTOGAS	Edition:	9

7. HANDLING AND STORAGE

- Handling

- safety precautions: Use product only in well-ventilated areas. Keep away from sources of heat and ignition. Use non-sparking tools. Decant only at properly marked and equipped areas in accordance with relevant regulations. Take special care of connection points to prevent possible leaks. Strictly follow occupational safety and fire safety measures.

Do not throw cylinders in order to avoid cylinder or valve damage. Do not handle cylinder in the presence of open flame. Do not check for leaks with open flame, only with soap (foam).

Do not open valves on cylinders or special-purpose tanks with any tool (only with hands).

During handling or storing full or empty LPG cylinders DO NOT remove safety caps.

- safe handling advice: Do not smoke, eat or drink in a room with a hazardous substance. Avoid inhalation, and contact with skin and eyes. Use personal protection equipment listed in Section 8.

- Storage: technical measures and storage conditions:

- SUITABLE: Pressurised closed containers made and equipped according to special regulations concerning LPG. Store in open space or well-ventilated place, explosion-proof.

- TO BE AVOIDED: Avoid storing with flammable chemicals (oxidants, acids). Do not keep sparking tools and machines in storage area.

Do not store or use cylinders in horizontal position i.e. position in which the liquid is coming out through gas phase opening.

- Packaging materials

- RECOMMENDED: Original manufacturer's container with valid certificate.

- NOT SUITABLE: Any other.

- Special use: No data available.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Exposure limit values

Hazardous substance (CAS No.)	Occupational exposure limit values/short term values (OEL/STEL)		Biological limit values
	ppm	mg/m ³	
-	-	-	

- **Monitoring procedures:** Measuring the concentration of oxygen and hazardous substances in the air according to the regulations.

8.2. Exposure controls

Product	LIQUEFIED PETROLEUM GAS PROPANE - BUTANE MIXTURE, PROPANE- RICH MIXTURE, AUTOGAS	Date: 2018/2/20
		Edition: 9

- **Summary of risk management measures:** The degree of protection and type of control depend on the possible exposure according to the risk assessment. Use adequate ventilation to maintain the concentration of explosive substances below the explosion limit. Educate and train the employees on potential hazards and control measures in performing regular activities. Stipulate a safe handling procedure.

8.2.1. Occupational exposure controls

- **Description of operating procedure and technological control:** Provide good ventilation of work space and air supply.

- Personal protective equipment

- respiratory tract protection: In the event of an elevated gas concentration and a decreased oxygen concentration, use the self-contained breathing apparatus. In normal conditions, use a mask with the suitable filter (filter for the protective mask and semi-mask, protection against gas and evaporation of organic compounds with a boiling point up to 65°C), HRN EN 14387.

- hand protection: Use protective gloves (HRN EN 374-3) of suitable material (nitrile or nitrile butyl rubber). In frequent contact with the hazardous substance, the resistance level to absorption of the gloves shall be > 240 min.

- eye protection: Safety goggles for working with chemicals (HRN EN 166).

- skin and body protection: Protective clothing (HRN EN ISO 13688, HRN EN 1149-5, HRN EN 14605 (type 3 and 4), HRN EN 1073-2, HRN EN ISO 13982-1:2005/A1:2011 TYPE 5, HRN EN 13034 TYPE 6, HRN EN 14126:2004/AC:2005).

- Special hygienic and safety precautions:

The work place shall be equipped with a shower. No smoking or eating and drinking when handling the gas. Regularly control and monitor the accuracy and the use of personal protective equipment used when handling the hazardous chemical. Regularly monitor and maintain personal protective clothing and equipment. The contaminated clothing may not be used and shall be replaced.

8.2.2. Environmental exposure controls

- **Summary of risk management measures:** No data available.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. General information:

- state: gas; liquid under pressure

- colour: colourless

- odour: intensive

- odour threshold: not applicable

9.2. Important health, safety and environmental information:

- pH value (indicate conc. and temp.): Not applicable.

Product	LIQUEFIED PETROLEUM GAS	Date:	2018/2/20
	PROPANE - BUTANE MIXTURE, PROPANE-RICH MIXTURE, AUTOGAS	Edition:	9

- boiling point/boiling range at 101,3 – 101,325 kPa:	°C	-161,48 up to -0,5 (from literature)
- flash point at 101,3 kPa:	°C	-104 up to -60 (from literature)
- flammability (solid, gas):		Extremely flammable (from literature)
- explosive properties:	vol. %	1,9 – 9,5 (from literature)
- oxidizing properties:		No data available.
- vapour pressure at 40 °C:	kPa	539 - 1430
- density at 15 °C:	kg/m ³	513,8 – 593,2
- relative density (water = 1):		0,514 – 0,593
- solubility (indicate solvent):	g/L	Soluble in ether, ethanol, chloroform (from literature)
- Solubility in water at 20 – 25 °C and pH 7:	mg/L	24,4 – 60,4 (from literature)
- partition coefficient n-octanol / water at 20 – 25 °C and pH 7	logPow	1,09 – 2,8 (from literature)
- viscosity (kinematic) at xx °C:	mm ² /s	Not applicable.
- vapour density at 15°C:	kg/m ³	No data available.
- volatility:		No data available.
9.3. Other data:		
- melting point/freezing point at 101,3 kPa:	°C	-187,6 up to -138,3 (from literature)
- disintegration temperature:	°C	No data available.
- auto ignition temperature at 99,8 up to 102,1 kPa:	°C	287 – 537 (from literature)
- conductivity:	pS/m	No data available.

10. STABILITY AND REACTIVITY

- Reactivity:	Stable under recommended handling and storage conditions. Does not polymerise.
- Chemical stability:	Stable under recommended handling and storage conditions. Does not polymerise.
- Possibility of hazardous reactions:	Stable under recommended handling and storage conditions.
- Conditions to avoid:	Contact with air, strong oxidants and increased temperature.
- Incompatible materials:	Strong oxidants.
- Hazardous decomposition products:	Combustion produces harmful gases – carbon monoxide (CO) and carbon dioxide (CO ₂).

Product	LIQUEFIED PETROLEUM GAS	Date:	2018/2/20
	PROPANE - BUTANE MIXTURE, PROPANE-RICH MIXTURE, AUTOGAS	Edition:	9

11. TOXICOLOGICAL INFORMATION

- Information on toxicological effects:

- Acute toxicity

- oral (LD₅₀): No data available.
- inhalation (LC₅₀): 658 mg/L (4 hours, rat)
- dermal (LD₅₀): No data available.

- Irritation/Corrosion

- skin: Compressed air causes frostbites.
- eyes: Compressed air causes frostbites.
- respiratory tract: No data available.

- Sensitisation

- skin: No data available.
- respiratory tract: No data available.

- Aspiration hazard: Not applicable.

- Other classic effects: (e.g. unconsciousness, particularly toxic metabolites, etc.): Suffocating gas causes headache and drowsiness. High concentration or longer exposure period may cause fainting and suffocation.

- Permanent effects due to acute or chronic exposure: No data available.

- Special effects

- mutagenicity: No data available.
- carcinogenicity: No data available.
- fertility decrease: No data available.
- harmful effect on unborn child: No data available.
- toxicity to reproduction: No data available.
- other (e.g. endocrine disruptors): No data available.
- STOT (SE): No data available.
- STOT (RE): No data available.

- Prohibitions and restrictions: No data available.

- Other: No data available.

12. ECOLOGICAL INFORMATION

12.1. Toxicity

- to aquatic organisms: No data available.
- to ground organisms: No data available.
- to plants and land animals: No data available.

12.2. Persistence and degradability

Product	LIQUEFIED PETROLEUM GAS PROPANE - BUTANE MIXTURE, PROPANE- RICH MIXTURE, AUTOGAS	Date:	2018/2/20
		Edition:	9

- biodegradation: No data available.
- other degradation processes: No data available.
- degradation in wastewater: No data available.

12.3. Bioaccumulative potential

- bio-concentration factor (BCF): No data available.

12.4. Mobility in soil

- Known or predicted distribution in environmental compartments: **Method:** No data available. Quickly evaporates into the atmosphere.
- surface tension: No data available.
- absorption/desorption: No data available.
- other physical and chemical properties: See section 9.

12.5. Results of PBT and vPvB assessment

- data from chemical safety report: No data available.

12.6. Other adverse effects:

No data available.

13. DISPOSAL CONSIDERATIONS

- **Waste codes:** Not applicable.
- **Waste treatment methods:** No data available.
- **Waste from residues:** Not applicable. There is no classic waste.
- **Contaminated packaging:** Close the empty containers and return to producer.
- **Relevant provisions:** Act on Sustainable Waste Management, Regulation on waste catalogue, Ordinance on waste management.

14. TRANSPORT INFORMATION

- **UN proper shipping name:** Hydrocarbon gas, mixture, liquefied, N.O.C., mixture: A, A01, A02, A0, A1, B1, B2, B or C.
- **UN number:** **1965**
- **Transport hazard class(es)**
- ADR/RID/ADN/ICAO/IATA: 2
- IMDG: 2
- **Packing group**
- ADR/RID/ADN/IMDG/ICAO/IATA: Not assigned to any packaging group.
- **Environmental hazards**
- ADR, RID, ADN, ICAO/IATA: No data available.
- IMDG: No data available.
- **Special precautions for user**
- ADR** **RID**

Product	LIQUEFIED PETROLEUM GAS PROPANE - BUTANE MIXTURE, PROPANE- RICH MIXTURE, AUTOGAS	Date:	2018/2/20
		Edition:	9

Transport category: 2
 Vehicle for tank carriage: FL
 Tank code: PxBN(M)
 Tunnel restriction code: B/D
 Label: 2.1
 Classification code: 2F
 Hazard identification: 23
 Special provisions: 274, 583, 652, 660, 662, TA4, TT9, CV9, CV10, CV36.

ADN

Label: 2.1
 Additional requirements/Remarks: 2;31
 Dangers: 2.1
 Equipment required: PP, EX, A
 Classification code: 2F
 Carriage permitted: YES
 Type of tank vessel: G/1
 Anti-explosion protection required: YES
 Maximum degree of filling in %: 91

ICAO

Label: 2.1
 Cargo IMP code: RFG
 Passenger and cargo aircraft: not allowed
 Cargo aircraft only: 150 kg net per packaging
 ERG code: 10 I

Transport in liquid condition according to MARPOL Convention, Annex II and IBC Codex

Trade name: LIQUEFIED PETROLEUM GAS PROPANE - BUTANE MIXTURE, PROPANE-RICH MIXTURE, AUTOGAS

Pollution category (according to MARPOL, Annex II):

Not classified as sea pollutant (lighter than water, evaporates on contact with water).

Vessel type (according to IBC Code):

2G/2PG

Special and operative requirements (according to IBC Code):

None.

Product	LIQUEFIED PETROLEUM GAS PROPANE - BUTANE MIXTURE, PROPANE- RICH MIXTURE, AUTOGAS	Date:	2018/2/20
		Edition:	9

15. REGULATORY INFORMATION

- **Applicable EU regulations:** EU Regulation No. 1907/2006 and No. 1272/2008 of the European Parliament and the Council; Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH);
EU Regulation No. 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer; EU Regulation No 689/2008 of the European Parliament and of the Council of 17 June 2008 concerning the export and import of dangerous chemicals; EU Regulation No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants;
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives
- **Applicable national regulations:** Chemicals Act; Ordinance on limit values of exposure to hazardous substances at work and on biological limit values; Ordinance on the compilation of safety data sheets.
- **Chemical Safety Assessment carried out (CSA):** YES **X** NO
- **Authorization information:**
- **Restriction information:**

16. OTHER INFORMATION

Revision indicators

Section: **Subject of change:**
1, 14 Data related to product trade name and code changed.

Full text of H- phrases, EUH- and P-phrases:

H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
P102 Keep out of reach of children.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.
P410+P403 Protect from sunlight. Store in a well-ventilated place.

Abbreviations and acronyms:

Product	LIQUEFIED PETROLEUM GAS PROPANE - BUTANE MIXTURE, PROPANE- RICH MIXTURE, AUTOGAS	Date:	2018/2/20
		Edition:	9

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS number	Chemical Abstract Service number
CLP	Classification, Labelling and Packaging of substances and mixtures
CSA	Chemical Safety Assessment
CSR	Chemical Safety Report
EC number	European Community number for identification of chemical substances commercially available in the EU
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code transport
LC50	Lethal concentration for 50% of tested organisms
LD50	Lethal concentration for 50% of tested organisms (medium lethal concentration)
OIN	Oil industry notes
PBT	Persistent, bioaccumulative and toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
STOT (SE)	Specific Target Organ Toxicity (Single Exposure)
STOT (RE)	Specific Target Organ Toxicity (Repeated Exposure)
UVCB	Chemical Substances of Unknown or Variable Composition, Complex Reaction Products and Biological Materials
vPvB	Very persistent and very bioaccumulative

Statement:

This SDS is in compliance with the EU Regulation No. 1907/2006 and No. 1272/2008 of the European Parliament and the Council. It contains important user health and safety and environmental protection information. The information provided herein is not a substitute for any specification of quality and should not be deemed as a guarantee of the adequacy and applicability of this product for any purpose whatsoever. All information provided herein is based on our current knowledge and compliant with applicable legal regulations. The user is responsible for adherence to relevant legal regulations.

Data source:

1. www.hzt.hr
2. <http://echa.europa.eu/hr>
3. LOA Category K – Other petroleum gases
4. Hazard classification and labelling of petroleum substances in the EEA, Concawe 2017.

APPENDIX: EXPOSURE SCENARIOS ACCORDING TO CHEMICAL SAFETY REPORT

Product	LIQUEFIED PETROLEUM GAS	Date:	2018/2/20
	PROPANE - BUTANE MIXTURE, PROPANE- RICH MIXTURE, AUTOGAS	Edition:	9
