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

1.1. Product identifier

Commercial name Technical Propane
Other names/identifiers -
Product type Liquefied petroleum gases. A liquefied mixture of aliphatic hydrocarbons with propane as a main component, remaining under pressure of its own vapours.
Chemical name **Gas from petrol, liquefied**
CAS no. 68476-85-7
EC no. 270-704-2
Index no. 649-202-00-6
Registration no. **Substance exempted from the registration requirement pursuant to Art. 2 (7) (b) of the Regulation no. 1907/2006 (REACH) and to Annex V to that Regulation.**

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

Use: Used as a gaseous fuel for heating purposes in residential buildings, commercial buildings, and industrial facilities and plants, as well as engine fuel. Stored in pressurized stationary or transportable tanks in the open. Product available to consumers.

1.3. Details of the supplier of the safety data sheet

Distributor
Name/first name and last name **AmeriGas Polska Sp. z o.o.**
Address **03-152 Warszawa, ul. Modlińska 344, Poland**
Telephone number **+48 22 519 19 19**
Fax number **+48 22 519 19 00 / 01**
Statistical no. (REGON) 470073638
Email address kontakt@amerigas.pl
Website <http://www.amerigas.pl/pl/o-lpg/czym-jest-lpg.html>
Unit providing information about the material safety data sheet *Krzysztof Boniński*
krzysztof.boninski@amerigas.pl
Tel. + 48 603 976 722

1.4. Emergency telephone number

+48 22 519 19 59 (24 h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture:

The substance is classified as hazardous pursuant to the Regulation (EC) no. 1272/2008.

- Hazard class and category codes:

Flam. Gas 1 – flammable gas
Press. Gas – pressurized gas.

- Hazard phrases:
H220 Extremely flammable gas.

2.2. Label elements

The substance meets the label criteria pursuant to the Regulation (EC) no. 1272/2008.

GHS04



GHS02



Signal word: Danger

Phrases indicating the type of hazard

H220 Extremely flammable gas.

Precautionary phrases

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. - No smoking.
- P377 In the event of a fire of leaking gas: Do not extinguish if the leak cannot be safely stopped.
- P381 Eliminate all ignition sources if safe to do so.
- P403 Store in a well ventilated place.

Reusable cylinders and cartridges containing propane, butane, or liquefied petroleum gas (LPG) are labeled only with a warning sign and phrases that concern only their flammability (R and S according to the present Act)*

Pursuant to Art. 16 of the Regulation of the Minister of Health of 20 April 2012 concerning labeling of packaging of hazardous substances and hazardous mixtures, and their certain mixtures (Journal of Laws of 2012, no. 0, item 445).

2.3. Other hazards

The substance does not meet the criteria for **PBT** or **vPvB** in accordance with Annex XIII to REACH.

SECTION 3: Composition/information on ingredients

List of substances present in the mixture: The product is a complex mixture of hydrocarbons obtained by distillation of petroleum oil. It is composed of hydrocarbons with carbon atom numbers mostly in the range of C₃ to C₇. Main component of the product: propane (C₃) (CAS 74-98-6), remaining components: methane, ethane, ethene, propane, butane, butenes, and butadienes. Trace amounts of mercaptans used as odourisers (usually ethyl mercaptan, ID No. 016-022-00-9) and sulphur may be present. Moreover, the composition of the product may include less than 0.1% (m/m) of buta-1,3-diene classified as carcinogenic (Carc. 1A) and mutagenic (Muta. 1B) (ID No. 601-013-00-X).

Composition (% m/m)	C2 < 5.5	C3 > 90	C4 < 1.0
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Gas from petrol, liquefied:

Composition:	> 99%
CAS no.:	68476-85-7
EC no.:	270-704-2
Index no.:	649-202-00-6
Registration no.:	Not subject to registration
Classification of substance pursuant to Regulation (WE) no. 1272/2008	Flam. Gas 1 Press. Gas

Substance not classified as carcinogenic or mutagenic [cf. tabl. 3.1 of Annex VI to the Regulation of the European Parliament and of the Council (EC) no. 1272/2008 of 16 December 2008] - note (d. nota) K] - according to the information provided by the manufacturer, contains less than 0.1% by weight of buta-1,3-diene.

SECTION 4: First aid measures

4.1. Description of first aid measures

Exposure by inhalation

Remove the victim to fresh air. Provide with warm and rest. Do not leave the victim without care. In case of loss of consciousness, put the victim down in a safe recovery position. In case of breathing difficulties, provide oxygen or artificial breathing, if possible. In case of a cardiac arrest (no pulse), carry out cardiopulmonary resuscitation. Call a physician.

Contact with skin

Wash the skin with a large amount of lukewarm water, do not remove the clothes if they are frozen on to the skin. Do not warm the skin with other media, do not rub the contaminated spots. Call a physician immediately.

Contact with eyes

Remove the contact lenses (if present). Immediately wash the eyes with a large amount of lukewarm water, for at least 15 minutes (with eyelids held open), avoid a strong water stream because of the risk of cornea damage; if one eye is contaminated, protect the other eye from contamination during washing. If symptoms persist, immediately transport the victim to a specialised medical institution. Persons exposed to eye contamination hazard should be instructed of the necessity to wash their contaminated eyes immediately.

Exposure by ingestion

Not applicable.

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

Contact with fumes of a gas with a high concentration may cause nausea, headaches, dizziness, in extreme cases leading to loss of consciousness and death as a result of lack of oxygen in the surroundings. Prolonged exposure to fumes of the gas may adversely affect the central nervous system. Liquid phase may cause frostbites. Ingestion of the liquid may cause death by freezing the larynx and filling lungs with the liquid (for a detailed description, see Section 11 of the MSDS).

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

CAUTION! An unconscious patient should be put down in a safe recovery position, kept calm, protected from loss of heat, have their breath and pulse checked. Never induce vomiting nor give anything to drink to an unconscious or dazed person.

SECTION 5: Firefighting measures

Extremely flammable. Contains pressurized gas. Forms flammable and explosive mixtures with air. Heavier than air and accumulates near the surface of the ground or in bottom parts of rooms. It may transfer to remote sources of ignition.

Suitable extinguishing media: Close the gas inflow and cool the tank with diffuse water streams. Water spray is useful for cooling of endangered storage tanks. A small fire may be put out using dry chemical fire extinguishers. If there is no danger for the environment, the gas should be burned out without extinguishing.

Unsuitable extinguishing media: strong water jet – stream jets. Do not use a full water jet in order to avoid spreading the fire. A large fire may be extinguished only by properly trained fire-fighting teams.

5.2. Special hazards arising from the substance or mixture

Vapours of the gas are heavier than air; they fill hollow places and may be ignited remotely. Prolonged influence of flames on a tank may cause a boiling liquid expanding vapour explosion (BLEVE).

Substances forming during a fire will vary depending on conditions causing the decomposition. As a result of normal burning, the following substances may be expected: carbon dioxide, carbon monoxide, unburned hydrocarbons, unidentified organic and inorganic compounds, trace amounts of polycyclic aromatic hydrocarbons.

Residue after a fire and contaminated fire-fighting media should be disposed of according to local regulations. Contaminated fire-fighting water should be collected separately and prevented from entering sewers.

5.3. Advice for fire-fighters

Special protective equipment for fire-fighters:

Fire-fighters should be equipped with protective clothes, helmets and gloves intended for use while fire-fighting. In case of exposure to a direct leakage of the product, individual protective measures indicated in item 8.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Remove outsiders and unauthorised persons from the leakage area and put them in a safe, well-ventilated place. Mark the area with warning signs. Assign trained personnel equipped with individual protective equipment to perform works connected with removal of effects of the failure. Provide sufficient ventilation. Avoid direct contact with the product. Do not use electrical devices unless they are explosion-proof.

Vapours of the gas may travel for long distances near the ground. Remove all possible ignition sources from the adjacent area. Close the gas inflow, if it is possible without endangering the personnel. Do not inhale vapours of the substance.

Before people are allowed back into the failure zone, check whether the gas concentration in the atmosphere is sufficiently low, in order to ensure their safe working conditions. Notify proper authorities, including fire-service, if a large gas leakage cannot be stopped. Observe proper national regulations.

6.2. Environmental precautions

Under normal conditions, there is no hazard to natural environment. Liquefied gaseous hydrocarbons are characterised by a very easy evaporation and high volatility; in case they are released from a tank, they promptly react with hydroxyl groups and ozone.

Prevent the product from entering to sewers, surface waters and ground waters. In case of a release of large amounts of the product, notify proper authorities and chemical emergency services.

6.3. Methods and material for containment and cleaning up

Avoid direct contact with the substance being released. If possible, eliminate the leakage (seal, put the damaged container in a protective packaging). In case of a small leakage, leave for evaporation. Do not use water for diffusion of the liquid phase. In case of a large leakage, try to diffuse the fumes or direct them into a safe place, using e.g. water curtains or mist streams. When this is impossible, proceed as in case of a small leakage. Ensure adequate ventilation.

6.4. References to other Sections

Personal protection measures – see Section 8

Dispose the waste according to recommendations of Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

The gas may be stored only in closed systems, i.e. in proper stationary or transportable tanks.

Do not used in closed areas or areas with dense development. Do not eat, drink or smoke while using the product. Do not inhale vapours. Exercise particular caution in case of proximity of ignition sources while using liquefied petroleum gases in properly designed equipment. Prevent formation of electrostatic discharges. A cylinder must be used upright unless it is specifically designed for operation in another position.

Avoid exceeding occupational threshold limit values and explosive concentrations at workplace. Electrical equipment must be explosion-proof according to proper standards.

7.2. Conditions for safe storage, including any incompatibilities

Store only in tanks or cylinders designed for proper pressure and properly labelled. Store outside or in well-ventilated rooms. Place the tanks or cylinders far from sources of heat and ignition. Do not store near cylinders containing compressed oxygen or other strong oxidisers. All storerooms should be equipped with a proper amount of fire-fighting media. Protect from children. Do not leave near sources of heat and fire. Do not store together with food, beverages and animal fodder.

Product transfer:

Electrical installations and equipment should conform with technical safety standards, as electrostatic charges may form during pumping. Electrical conductance should be ensured by connection of all components. Avoid direct contact with the equipment as it might lead to frostbites. Do not use compressed air for filling, emptying and transfer.

Materials recommended:

Use proper higher-strength low-alloy steel for the tanks. Use high-density non-asbestos sealing, spiral packing pieces or other permitted seals for sealing.

Materials not recommended:

Regarding metals, aluminium should not be used if there is a risk of alkaline contamination of the product. Cast iron is also not recommended. Regarding non-metal materials, natural rubber cannot be used. It is not advisable to use nitrile rubber and other plastics.

Storage of bulk quantities:

Ensure that national regulations concerning handling and storage of the product (see Section 16) are observed. In case of storage of large gas amounts (> 50 t or > 200 t), additional safety procedures connected with severe failure hazard are required.

Cleaning of tanks:

Cleaning, control and maintenance of tanks are specialist operations requiring implementation of strict procedures and preparations. These include obtaining a work permit, tank degassing, using a safety harness with a lifeline, and a breathing apparatus. While entering and staying inside the tank, concentration of gas in the air should be constantly checked using an oxygen meter or explosimeter.

7.3. Specific end use(s):

As a fuel for burning in residential and industrial buildings (e.g. for heating, drying), for cooking in cookers in residential and commercial buildings, for powering vehicles. The product is used also as a propellant and a feedstock in petrochemical industry. Without notifying the supplier, the product may not be used for purposes other than those mentioned above.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1. National limit values, including their legal basis (see Section 15):

8.1.1.1. National occupational exposure limit values:

The multi-component substance is a complex mixture of light gases, obtained by sweetening of a mixture of liquefied petroleum gases in order to convert thiols (mercaptans) or remove acidic impurities. It is composed of hydrocarbons with carbon atom numbers mostly in the range of C₃ to C₇, boiling in the temperature range from approx. minus 40°C to 80°C.

Propane: TLV-TWA = 1800 mg/m³;

Buta-1,3-diene: TLV-STEL = 4.4 mg/m³;

Ethyl mercaptan (ethanethiol): TLV-CL = 1.0 mg/m³;

8.1.1.2. National biological limit values: Not established.

8.1.2. Information on currently recommended monitoring procedures for the most relevant substances:

Measurement methodology – mode, methods, type and frequency of tests and measurements of factors harmful for health present in the working environment shall be used, according to the legal regulations in force (see Section 15). Methods of tests and measurements of factors harmful for health in the working environment are defined in Polish and international or equivalent standards. E.g.:

- PN-Z-04252-1:2012 Air purity protection -- Tests of contents of liquefied gas components -- Determination of propane and n-butane in the workplaces by gas chromatography.
- PN-Z-04014-02:1984 Air purity protection Determination of butadiene in the workplace by gas chromatography.
- PN-Z-04207-02:2007 Air purity protection -- Tests of mercaptan contents -- Determination of n-butyl mercaptan in the workplaces by gas chromatography with flame ionization detection.
- ASTM D 5305:1997 Ethyl mercaptan in liquefied gaseous hydrocarbons – Gaseous fumes,

determination.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Local exhaust ventilation removing gases from the place of their emission and general room ventilation are necessary. Suction holes of local ventilation at the working surface or below it. Ventilators of general room ventilation in the upper portion of the room and at the floor. Ventilation installations must conform with the conditions set considering the fire or explosion hazard. See also Section 7.

8.2.2. Individual protection measures, such as personal protective equipment:

Exercise general caution for work with chemicals. Do not eat, drink or smoke while using the product. Store far from food, beverages and fodders. Avoid contact with skin and eyes. Wash hands before every break and after work. Remove immediately all clothes contaminated with the product, wash skin with a large amount of water. Do not inhale vapours or sprayed mist.

- a) **Eye/face protection:** Use of safety goggles protecting from mist, liquid drops and splashes, or a head screen according to PN-EN 166:2005 is recommended.
- (i) **Hand protection:** neoprene or nitrile rubber or chrome-plated leather safety gloves according to PN-EN 374-1:2005 and PN-EN 420+A1:2012. The gloves should remain flexible at a temperature below boiling temperature of the gas under atmospheric pressure. It may be necessary to change the gloves more frequently if an immersion or prolonged contact with the product occurs. Selection of a material for the safety gloves is possible while considering breakthrough time, penetration rate and degradation.
- (ii) **Other:** Working clothes and shoes, and protective equipment made of a material meeting the requirements defined in Polish regulations for plant with workstations characterised by a possibility of occurrence of explosive atmosphere. In case of transporting cylinders, anti-electrostatic safety steel-toe shoes according to PN-EN ISO 20345:2007 should be worn
- b) **Respiratory protection:** It is not necessary while good ventilation of the room is used. Inhalation of LPG vapours should be minimised. In case of an exposure to increased concentrations of gas, e.g. during emergencies, self-contained breathing apparatus should be used.
- c) **Thermal hazards:** see above.

8.2.3. Environmental exposure controls

There is no need to use special measures. For the sake of their high volatility, liquefied petroleum gases do not cause soil or water pollution. The highest permissible values of pollutant factors in air are defined by legal acts – see Section 15. Emission from ventilation systems and processing equipment should be checked in order to determine their conformity with the requirements of environmental protection regulations.

Reference values in atmospheric air for components of the multi-component substance:

mercaptans: 200 µg/m³ 1-hour average
2 µg/m³ 1-calendar year average

aliphatic hydrocarbons up to C₁₂ (apart from those listed in other positions, and methane):

3000 µg/m³ 1-hour average
1000 µg/m³ 1-calendar year average

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Liquefied gas, colourless
Odor:	Pungent, unpleasant
Odor threshold;	Not provided
pH	Not provided
Melting point/freezing point;	Not provided
Initial boiling point and boiling range;	-45°C
Flash point;	-104°C

Evaporation rate;	Not provided
Flammability (solid, gas);	Not provided
Upper/lower flammability or explosive limits;	Mixtures of vapours with air may be explosive. Upper explosive limit: 10% (v/v) Lower explosive limit: 2.2% (v/v)
Saturated vapor pressure;	860-980 kPa at 20 °C
Relative density;	500-510 kg/m ³ at 15 °C
Relative vapor density; (air=1)	1.52 at 15 °C
Solubility;	Not provided
Partition coefficient: n-octanol/water;	Log Pow=2.3 (estimate)
Auto-ignition temperature;	> 450 °C
Decomposition temperature;	Not tested
Kinetic viscosity;	Not provided
Explosive properties;	Explosiveness group: IIA
Oxidizing properties.	None
9.2. Other information	-

SECTION 10: Stability and reactivity

10.1. Reactivity:

Not specified.

10.2. Chemical stability:

In normal use and storage conditions, the product is stable.

10.3. Possibility of hazardous reactions:

Avoid formation of mixtures of vapors with air - may be explosive.

10.4. Conditions to avoid:

Heating, flames, sparks, electrostatic discharges.

10.5. Incompatible materials:

Strong oxidants.

10.6. Hazardous decomposition products:

Substances produced as a result of thermal decomposition of the product are strongly dependent on the conditions that cause the decomposition. In normal combustion conditions, the main products of decomposition are carbon dioxide, carbon monoxide, and steam. Trace quantities of polycyclic aromatic hydrocarbons, not combusted hydrocarbons, and unidentified organic and inorganic products may be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

a) Acute toxicity:

Liquefied petroleum gases are not classified with regard to their acute toxicity, irrespective of method of their administration.

Contact with fumes of a gas with a high concentration may cause nausea, headaches, dizziness, in extreme cases leading to loss of consciousness and death as a result of lack of oxygen in the surroundings. Liquid phase may cause frostbites. Ingestion of the liquid may cause death by freezing the larynx and filling lungs with the liquid.

No data is available on a median of fatal doses and concentrations for the multi-component substance – liquefied petroleum gases. Toxicity was estimated based on data for the individual significant components of the substance.

Doses and concentrations fatal and toxic for humans:

Propane odour threshold 9022-36088 mg/m³

b) Skin corrosion/irritation:

Liquefied petroleum gases are not classified as irritating or corrosive for the skin. Contact of the skin with a vessel containing propane or liquid phase being quickly released to the atmosphere may cause skin frostbites.

c) Serious eye damage/irritation:

Liquefied petroleum gases do not meet the classification criteria for posing a hazard in this class; however, eye irritation may occur (conjunctiva redness, lacrimation) in case of a contact with propane liquid phase.

d) Respiratory or skin sensitisation:

The product does not meet the classification criteria for posing a hazard in this class.

e) Germ cell mutagenicity:

Liquefied petroleum gases are not classified as mutagens.

f) Carcinogenicity:

Liquefied petroleum gases are not classified as carcinogens according to note K attributed to them, because their contents of buta-1,3-diene classified as carcinogenic (Carc. 1A) and mutagenic (Muta. 1B) is lower than 0.1%.

g) Reproductive toxicity:

Liquefied petroleum gases are not classified as harmful for reproduction.

h) STOT – single exposure:

Contact with fumes of a gas with a high concentration may cause nausea, headaches, dizziness, in extreme cases leading to loss of consciousness and death as a result of lack of oxygen in the surroundings.

Tissues most sensitive to hypoxia are those requiring large oxygen supply: central nervous system, heart, flesh organs. Symptoms of hypoxia include initially dyspnoea and fatigue, headaches and dizziness, motor coordination disorder, and significant disorder of assessment of the situation. Victims often lose the sense of direction and are not able to leave the scene of accident by themselves. Under heavier oxygen deficiency, loss of consciousness and death occur.

i) STOT – repeated exposure:

Prolonged exposure to fumes of the gas may adversely affect the central nervous system. Too long and repeated exposure to high concentrations of the gas (smelling, inhalation), may cause death by suffocation or heart attack.

j) Aspiration hazard:

Liquefied petroleum gases do not meet the classification criteria for posing a hazard in this class.

SECTION 12: Ecological information

The product is not classified as dangerous for environment.

12.1. Toxicity

No data available for the product. No quantitative data available on toxicity of the product. Below, the data available for significant components of the multi-component substance are shown:

Technical propane-butane mixture

LC50/96 h *Oncorhynchus mykiss* > 24.11 mg/l

EC50/48 h *Daphnia magna* > 14.22 mg/l

EC50/72 h *Pseudokirchnerella subcapitata* > 7.71 mg/l

12.2. Persistence and degradability

Undergoes a fast diffusion in air. Undergoes a fast oxidation in air in the photochemical reaction process.

12.3. Bioaccumulative potential

The product does not accumulate.

12.4. Mobility in soil

The product evaporates promptly and completely from water and soil.

12.5. Results of PBT and vPvB assessment

Not applicable.

12.6. Other adverse effects

Liquid waste pollution does not occur. Considering its fast release from solutions, the product does not pose a hazard for aquatic organisms.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal of the collected waste is to be carried out according to valid regulations (see Section 15). In every case, utilization of the product, its solutions and derivative products should be consistent with the environmental protection requirements and legislation on waste utilization, as well as the requirements of local authorities.

Product: Prevent significant amounts of products from entering sewer systems. Do not dispose to municipal waste dumps.

References to EU / national regulations:

Waste classification according to European Waste Catalogue (EWC):

The waste is classified according to source of their origin, therefore the waste code may vary depending on the way and place of waste origin:

Acc. to the Decree of the Minister of Natural Environment of 9 December 2014 on the catalogue of wastes ,waste code: 16 05 04* Gases in containers (including halons) containing dangerous substances. The waste is classified as a dangerous waste.

Packagings containing residuals of dangerous substances or contaminated with these substances (code 15 01 10*).

Detailed waste code should be assigned taking into account the place and way of waste origin.

Proper methods for disposal of the substance and contaminated packaging:

Considering the character and application of the product, a need for its disposal occurs only rarely. In necessary cases, dispose by controlled burning using a special device. In case of lack of the device, contact the product's supplier.

Disposal of tanks

Partially used or nominally empty cylinders are to be returned to the supplier.

SECTION 14: Transport information

The product is subject to regulations in the scope of dangerous goods transport. Transport according to the shipment certificate.

ADR/RID land transport:

UN number:	1965
Proper shipping name – ADR:	GASEOUS HYDROCARBONS MIXTURE, LIQUEFIED, I.N.O. (Mixture C)
Proper shipping name – RID:	GASEOUS HYDROCARBONS, LIQUEFIED MIXTURE, I.N.O. (Mixture C)
Class	2
Classification:	2F
Packaging group	Not applicable
Label:	2.1



13 (RID only) – Shunt carefully



Other information:

It is forbidden to transport the gas in passenger planes.

HAZCHEM code	2/W/E
Road transport	ADR regulations in force
Rail transport	RID regulations in force
Inland transport	ADN regulations in force
Air transport	ICAO regulations in force
Sea transport	IMDG regulations in force

SECTION 15: Regulatory information

- **Decree of the Cabinet of 24 August 2004 on the list of jobs forbidden for juveniles and terms of their employment in some of these jobs (J. of Laws of 14 September 2004, No. 200, item 2047):**
Works connected with exposure to chemical substances and preparations, classified in the regulations on criteria and classification method of chemical substances and preparations as extremely flammable, are forbidden for juveniles.
- **Decree of the Minister of Health of 11 June 2012 on categories of hazardous substances and hazardous mixtures with packaging equipped with closing devices which hinder opening them by children, and with tactile warning of danger (J. of Laws 2012, No. 0 item 688):**
§ 3. 1. Packagings of substances marked according to regulations based on Art. 20 Par. 11 as extremely flammable, offered or sold to customers, should be equipped, irrespective of the packaging's capacity, with a tactile warning of danger.

Volatile Organic Compounds (VOC): Directive 1999/13/EC: no data

Seveso Directive (2012/18/EU): Update: 2015

Quantity of dangerous substance determining the allocation of plant to higher or major risk:

Higher risk: <200 t; 50t>

Major risk: >=200t>

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

1. Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (corrected version O.J. L 136 of 29 May 2007 page 3, as amended).
2. COMMISSION REGULATION (EC) No. 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No. 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures (O.J. L 235 of 5 September 2009).
3. Commission Regulation (EU) No. 453/2010 of 20 May 2010 amending Regulation (EC) No. 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). O.J. L 133 of 31 May 2010.
4. Regulation of the European Parliament and of the Council (EC) No. 1272/2008 of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/648/EEC and 1999/45/EC, and amending Regulation (EC) No. 1907/2006 (O. J. L 353 of 31 December 2008, p. 1) as amended by the Commission Regulation (EC) No. 790/2009 (O. J. L 235 of 5 September 2009, p. 1).
5. Decree of the Minister of Health of 10 April 2012 on *labelling of hazardous substances and hazardous mixtures and some mixtures* (J. of Laws 2012, No. 0 item 445).
6. Decree of the Minister of Health of 10 August 2012 on *criteria and method for classification of chemical substances and their mixtures* (J. of Laws of 14 September 2012, item 1018).

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7. Act of 25 February 2011 on chemical substances and their mixtures (J. of Laws 2011, No. 63, item 322).
 8. Decree of the Minister of Economy of 21 December 2005 *on principal requirements for personal protection measures* (J. of Laws 2005, No. 259, item 2173).
 9. Decree of the Minister of Labour and Social Policy of 26 September 1997 *on general occupational health and safety regulations* (consolidated text in J. of Laws 2003, No. 169, item 1650, as amended).
 10. Decree of the Minister of Labour and Social Policy of 29 November 2002 *on the highest permissible concentrations and intensities of factors hazardous for health at workplace* (J. of Laws 2002, No. 217, item 1833 as amended).
 11. Decree of the Minister of Health of 24 July 2012 *on chemical substances and their mixtures, or technological processes, with carcinogenic or mutagenic action in working environment* (J. of Laws of 3 August 2012, item 890).
 12. Recommended preliminary and periodical examinations of workers exposed to chemical substances should be carried out according to the Decree of the Minister of Health and Social Care of 30 May 1996 *on carrying out medical examinations of workers, scope of prophylactic medical care for workers and medical certificates issued for purposes provided for in the Labour Code* (J. of Laws 1996, No. 69, item 332 as amended).
 13. Decree of the Minister of Environment of 9 December 2014 *on the catalogue of waste* (J. of Laws 2014, No. 1923)
 14. Act of 14 December 2012 *on waste* (J. of Laws 2013, No. 21, item 1238)
 15. Act of 13 June 2013 *on packagings and packaging waste* (J. of Laws 2013, No. 888)
 16. Decree of the Minister of Environment of 26 January 2010 on reference values for some substances in air (J. of Laws 2010, No. 16, item 87).
 17. Decree of the Minister of Construction of 14 July 2006 on method of performing duties of liquid industrial waste suppliers and conditions for introduction of liquid waste to sewage installations (J. of Laws 2006, No. 136, item 964).
 18. Decree of the Minister of Development of 8 August 2016 on detailed requirements concerning reduction of emissions of volatile organic compounds formed as a result of utilisation of organic solvents in some paints and lacquers and in preparations for renovation of vehicles (J. of Laws 2016, No. 0, item 1353).

15.2. Chemical Safety Assessment: According to the manufacturer's statement, the chemical safety assessment was not carried out.

SECTION 16: Other information

A key or legend to abbreviations and acronyms used in the safety data sheet:

LC50/LD50 medial lethal concentration/dose
LDLo lethal dose low
TCLo toxic concentration low

Key literature references and sources for data:

1. Safety Data Sheet: 11.1
2. TOXNET Toxicology Data Network. US National Library of Medicine. 2011

List of relevant hazard statements and/or precautionary statements (full text of any statements which are not written out in full under Sections 2 to 15):

H220 Extremely flammable gas.

Identification and information about the classification required from 1 June 2015 before its use for classification and labeling on the packaging:

The substance meets the classification criteria according to the CLP (REGULATION (EC) NO. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006). The substance is classified as a substance that creates a hazard in accordance with the aforementioned criteria.

Revision 11.0, Date of last update: 1 June 2015 The SDS was updated based on the provisions of Annex II to the Commission Regulation (EU) no. 453/2010 (labeling complying with the CLP). Author: Andrzej Duda,

Safety and Environmental Protection Specialist, AmeriGas Polska.

Revision 11.1, Date of last update: 29 March 2017 Update of the data contained in items 1.3, 8.1, 8.2.2, 13.1, 15, and 15.1 of the sheet. Updated by M. Malkowski