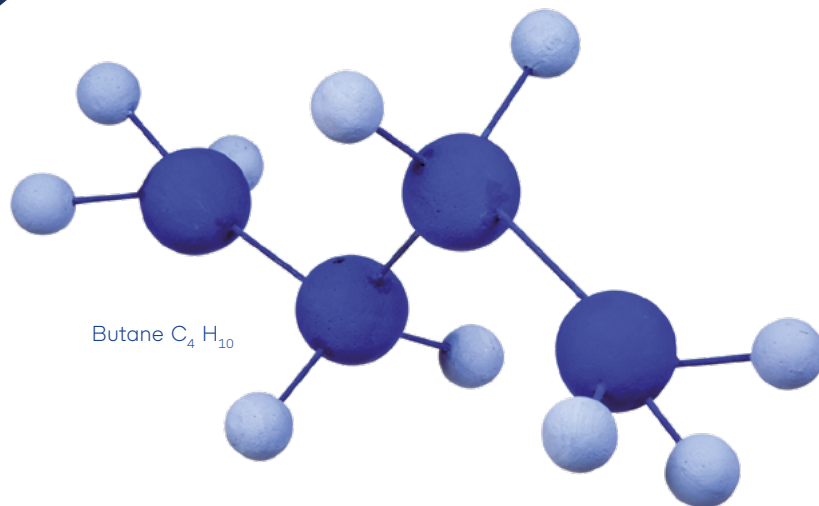
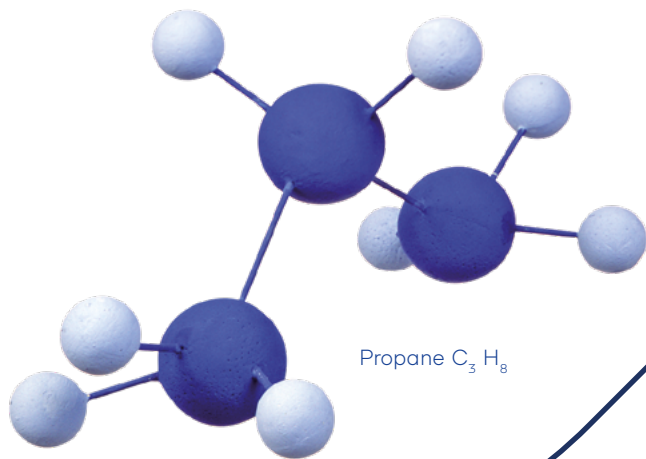




Safety Data Sheet

in accordance with the REACH Regulation (1907/2006/EC)

including the amending Regulation (EU) 2020/878

August 2026

Gases for
tomorrow

T4czka 
ENERGY

Section 1: Identification of the substance or mixture and of the company/undertaking

1.1 Product identifier

Product name: Propane, liquefied gas, MOTOGAS

Trade name: Liquefied gas according to DIN 51622 for heating purposes

Propellant gas (MOTOGAS) according to DIN 51622 for engine applications

Other names: Camping gas, LPG, forklift gas, fuel gas for hot-air balloons

Propane according to engine applications

Other names: Camping gas, LPG, forklift gas, fuel gas for hot-air balloons

Propane according to DIN 51622 –

UFI: C0YK-X4-JS-3006-597D

1.2 Relevant identified uses of the substance or mixture and uses

Relevant identified uses

Fuel, propellant, industrial use, use as fuel

Uses advised against

Balloons, natural gas vehicles

1.3 Details of the supplier providing the safety data sheet

Tyczka Energy GmbH

Blumenstraße 5, 82538 Geretsried

For further information:

Phone +49 8171 627-0

sicherheit@tyczka.de

1.4 Emergency telephone number

Tyczka Energy – Technical emergency service

Phone +49 800 2566611 (available 24 hours)

Berlin Poison Control Centre:

Phone +49 30 30686790 (available 24 hours)

Section 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable gases, Category 1A (Flam. Gas 1A), H220 gas under pressure, liquefied gas (Compressed Gas C), H280

Additional information

The product contains less than 0.1%

1,3-butadiene

It complies with the requirements of DIN 51622.

Misuse may result in burns, cold burns, or suffocation.

2.2 Label elements

Labelling according to Regulation (EC) Nr. 1272/2008 [CLP]

GHS02 Flame

GHS04 Gas cylinder*



Signal word: Danger

Hazard

statements: H220 Extremely flammable gas.
H280 Contains gas under pressure.
May explode if heated.

Precautionary statements

Prevention: P210 Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources.

Response: P377 Leaking gas fire: Do not extinguish unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources

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

2.3 Other hazards

Repeated or prolonged exposure may cause nausea, drowsiness, and headaches.

Risk of frostbite from liquid product. Vapours are heavier than air. They displace atmospheric oxygen, which can lead to unconsciousness or death. Electrostatic charges may build up during transfer operations.

Section 3: Composition/ Information on ingredients

3.1 Substances

Not relevant (mixture)

3.2 Mixtures

Substance name: Propane

EC-No.: 200-827-9

CAS-No.: 74-98-6

Index-No.: 601-003-00-5

REACH-registration No.: 01-2119486944-21-xxxx

Content: 47.5 – 100 wt %

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

Flam. Gas 1A/H220

Press. Gas C/H280

Substance name: Propene

EC-No.: 204-062-1

CAS-No.: 115-07-1

Index-No.: 601-011-00-9

REACH-registration No.: 01-2119447103-50-xxxx

Content: < 47.5 wt %

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

Flam. Gas 1A/H220

Press. Gas C/H280

Substance name: n-Butane

EC-No.: 203-448-7

CAS-No.: 106-97-8

Index-No.: 601-004-00-0

REACH-registration No.: 01-2119474691-32-xxxx

Content: ≤ 5 %

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

Flam. Gas 1A/H220

Press. Gas C/H280

Substance name: Ethane

EC-No.: 200-814-8

CAS-No.: 74-84-0

Index-Nr.: 601-002-00-X

REACH-registration No.: 01-2119486765-21-xxxx

Anteil : ≤ 5 %

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

Flam. Gas 1A/H220

Press. Gas C/H280

Substance name: Isobutane

EC-No.: 200-857-2

CAS-No.: 75-28-5

Index-No.: 601-004-00-0

REACH-registration No.: 01-2119485395-27-xxxx

Content: ≤ 5 %

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

Flam. Gas 1A/H220

Press. Gas C/H280

The full name of the H- and P-phrases is contained in Chapter 16.5.

Abschnitt 4: First aid measures

4.1. Description of first aid measures

4.1.1 General information

Do not leave the affected person unattended. Remove the victim from the danger zone. Immediately remove contaminated or soaked clothing. Seek medical advice if symptoms occur or in cases of doubt. In case of unconsciousness, place in the recovery position and do not administer anything by mouth. Self-protection for the first aider: Keep away from escaping liquid phase due to the risk of cold burns.

Risk of death by suffocation in basements or depressions, as liquefied gas is heavier than air. Strictly avoid sources of ignition.

4.1.2 Inhalation

In case of irregular breathing or respiratory arrest, seek medical assistance immediately and initiate first aid measures. Ensure a supply of fresh air.

4.1.3 Skin contact

In case of skin contact, rinse with warm water. Immediately remove contaminated or soaked clothing. Clothing frozen to the skin must be thawed with lukewarm water before removal. Warm up affected areas slowly. Cover frostbitten areas with a sterile dressing and consult a doctor.

4.1.4 Eye contact

Remove any contact lenses if possible. Continue rinsing. Keep eyelids open and rinse thoroughly with clean, running water for at least 10 minutes.

4.1.5 Ingestion

Rinse mouth with water (only if the injured person is conscious). Do NOT induce vomiting.
Call a doctor.

4.1.6 Notes for the physician.

The following symptoms may occur:
frostbite, unconsciousness, shortness of breath, drowsiness.

Hazards: circulatory collapse, respiratory disorders.

Treatment: treat symptomatically.

Oxygen administration if necessary. Treat frostbitten areas appropriately.

Monitor circulation; treat for shock if necessary.

Ensure the first aider's own safety.

If medical treatment is required: have the safety data sheet available.

4.2 Most important acute or delayed symptoms and effects

Breathing difficulties, frostbite, headache, dizziness

4.3 Indication of immediate medical attention or special treatment

Subsequent monitoring for pneumonia and pulmonary edema. Monitor circulation.

Section 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water spray, alcohol-resistant foam, BC powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

Full water jet

5.2 Special hazards arising from the substance or mixture

Special hazards:

Contact with the product can cause burns and/or frostbite. Contains gas under pressure; may explode if heated. Risk of container bursting. Hazardous combustion products: Carbon monoxide (CO), carbon dioxide (CO₂).

5.3 Advice for firefighters

Do not inhale explosion or combustion gases. Coordinate firefighting measures with the surrounding area. Do not allow fire-extinguishing water to enter drains or bodies of water. Collect contaminated fire-extinguishing water separately. Fight fire using standard precautions from a safe distance. If the substance leaks, eliminate ignition sources and leave the danger zone. Close off and seal low-lying areas. Cordon off the endangered area downwind. Cool endangered containers with a water spray. Disperse explosive gas-air mixtures using water spray or explosion-proof ventilation equipment until concentrations fall below the explosive limit. Do not extinguish fires at the point of leakage, as uncontrolled reignition may occur.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment, and emergency procedures

Thoroughly ventilate affected areas. Vaporized product is heavier than air and spreads along the ground. Remove all nearby ignition sources. Avoid skin contact. Keep uninvolved persons away or evacuate them and remain upwind. Wear protective clothing (flame-retardant, antistatic) and antistatic safety shoes. Use self-contained breathing apparatus if exposed to vapors/gases. If possible, push vehicles with leaking autogas systems to a safe area outdoors. Do not operate the ignition; do not start the engine. Do not allow the vehicle to vent near manhole covers or other ground-level openings. Notify the police or fire department.

Personnel not trained for emergencies

Move people to safety. Ensure adequate ventilation. Avoid sources of ignition.

Emergency personnel:

Respiratory protection must be worn in the event of exposure to vapors, dusts, aerosols, and gases. Ensure adequate ventilation. See additional information in DGUV Information 205-030, „Handling portable LPG cylinders during firefighting operations.“

6.2 Environmental protection measures

Prevent entry into the sewer system or into surface water and groundwater.
Retain and dispose of contaminated wash water.
Notify the competent authorities if the product has caused environmental pollution (e.g. sewerage systems).

6.3. Methods and materials for containment and cleaning up

Advice on how to prevent spilled materials from spreading:
Covering of drains
Further information regarding spills and release: Transfer to suitable containers for disposal.
Ventilate the affected area.

6.4. Reference to other sections

Hazardous combustion products: see Section 5.
Personal protective equipment: see Section 8.
Incompatible materials: see Section 10.
Disposal information: see Section 13.

Section 7: Handling and storage

7.1. Precautions for safe handling

Measures to protect against fire and explosions
Keep away from sources of ignition. No smoking.
Take measures against electrostatic charging during transfer processes.
Use explosion-proof equipment.
Temperature classes T1 (VDE) Propane
Explosion group II A (VDE)
Fire class: C
Storage class (TRGS 510): 2A

Measures to prevent aerosol and dust formation

In practice, the formation of aerosols or dusts is not possible.

Measures to protect the environment see Section 6.2

General hygiene measures

Wash hands after use. Do not eat, drink, or smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Do not store food and drinks together with chemicals. Do not use containers intended for food to store chemicals. Keep away from food, drink, and animal feed.

7.2. Conditions for safe storage, including any incompatibilities

Information on storage conditions

Hazards due to flammability: Keep away from sources of ignition – No smoking. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. Take measures against electrostatic discharge. Protect from sunlight.

Requirements for storage rooms and containers

Only approved packaging (e.g., in accordance with ADR) may be used. Requirements for storage rooms are described in TRGS 510, and requirements for stationary installations are described in TRBS 3146/TRGS 746.

Advice on storage compatibility

Storage class according to TRGS 510, Germany: 2 A (Gases (excluding aerosol dispensers and lighters)).

7.3. Specific end uses

Recommendations: Use only as fuel or propellant.
Industry solutions: Can also be used as a propellant in spray cans.

Section 8: Exposure controls / Personal protection

8.1 Control parameters

Occupational exposure limit values and/or biological limit values
Occupational exposure limits (AGW) Germany

Substance name: Propane

CAS-No: 74-98-6
Specification: AGW
Value: 1800 mg/m³, 1000 ppm (DE: TRGS 900)
Peak limitation/Excursion factor:
4 (DE: TRGS 900)
Reproductive toxicity:
Monitoring procedures:

Substance name: Propene

CAS-No.: 115-07-1
Specification: No AGW or DNEL values available
Value:
Peak limitation/Excursion factor:
Reproductive toxicity:
Monitoring procedures:

Substance name: n-Butane

CAS-No.: 106-97-8
Specification: AGW
Value: 2400 mg/m³, 1000 ppm (DE: TRGS 900)
Peak limitation/Excursion factor:
4 (DE: TRGS 900)
Reproductive toxicity:
Monitoring procedures:

Substance name: Ethane

CAS-No.: 74-84-0
Specification: No AGW or DNEL values available
Value:
Peak limitation/Excursion factor:
Reproductive toxicity:
Monitoring procedures:

Substance name: Isobutane

CAS-No.: 75-28-5
Specification: AGW
Value: 2400 mg/m³, 1000 ppm (DE: TRGS 900)
Peak limitation/Excursion factor:
4 (DE: TRGS 900)
Reproductive toxicity:
Monitoring procedures:

8.2. Exposure controls

Observe appropriate technical controls
Ensure general ventilation.
Pressurized systems should be checked regularly for leaks.
Ensure that concentrations of the product in the ambient air remain well below the occupational exposure limit (if applicable).

The substance is not classified as hazardous to health or the environment, nor as PBT or vPvB; therefore, no exposure assessment or risk assessment is required.

Tasks requiring the involvement of workers must be carried out in accordance with good industrial and safety practices.

Select personal protective equipment that complies with EN/ISO standards.

Eye/face protection

Wear safety glasses with side shields or full-protection goggles in accordance with DIN EN 166.

Skin protection Gloves

Wear work gloves when handling pressure vessels/gas cylinders.
Observe the standards DIN EN 374 (protective gloves against chemicals) and DIN EN 388 (protective gloves against mechanical risks).
The breakthrough time of the selected gloves must exceed the intended duration of use.
Consult the glove manufacturer's product information to determine the glove material and thickness.

Other skin protection

Allow for recovery periods to let the skin regenerate. Preventive skin protection (protective creams/ointments) is recommended. Wash hands thoroughly after use. Wear safety shoes when handling compressed gas cylinders / pressure vessels (standard: EN ISO 20345 – Personal protective equipment – Safety footwear).

Consider using flame-resistant, antistatic protective clothing
(Standards: EN ISO 14116 – Flame-retardant materials; EN ISO 1149-5 – Protective clothing: Electrostatic properties).

Respiratory protection

Wear respiratory protection if ventilation is inadequate.

If engineering controls cannot keep airborne contaminant concentrations below the critical occupational safety limit, appropriate respiratory protection must be selected, taking into account specific working conditions and relevant legal regulations.

Gas filtering devices may only be used if ambient conditions—such as the type and concentration of the contaminant(s) and the intended duration of use—are known (Standard EN 14387 – Gas filters, combined filters, and full-face masks according to EN 136).

Protection against heat/cold

Contact with the product can cause burns and/or frostbite. Wear the heat protection mentioned above.

Limiting and monitoring environmental exposure

Use suitable containers to prevent environmental contamination. Prevent entry into the sewer system or into surface water and groundwater. Observe national emission regulations.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	gaseous (liquefied)
Colour:	colourless
Odour:	characteristic unpleasant due to odorant
Odour threshold:	Odour perception is subjective
Melting point/ freezing point:	- 187.6 °C at 1.013 hPa
Initial boiling point and boiling range:	- 48 °C at 1.013 hPa
Flash point:	- 82 °C at 1.013 hPa
Evaporation:	not determined
Flammability rate (solid, gaseous):	extremely flammable gas
upper/lower explosion limits:	11.2 % vol. (UEL); 1.5 vol. % (LEL)
Vapour pressure:	8.400 hPa at 20 °C
Vapour density:	0.5 g/cm ³ at 20 °C
Relative density:	1.55 at 20 °C (air = 1)
Solubility(ies):	53.5 mg/l at 20 °C
Partition coefficient n-octanol/water:	2.6
Auto-ignition temperature:	470 °C
Decomposition temperature:	not relevant
Viscosity:	not relevant (gaseous)
Explosive properties:	none
Oxidising properties:	none

9.2 Other information

Gas group (explosion group):
IIA (Maximum Experimental Safe Gap;
MESG >0.9 mm)
Solids content: 0%
Temperature class (EU acc. to ATEX):
T1 (max. permissible surface temperature
of equipment: 450 °C)

Section 10: Stability and reactivity

10.1. Reactivity

Regarding incompatibilities: see „Conditions to avoid“ and „Incompatible materials“ below.
The mixture contains reactive substance(s).
Gas under pressure. Risk of ignition.
Upon heating: risk of explosion, gas under pressure, risk of container bursting.

10.2. Chemical stability

Stable under normal storage conditions.

10.3. Possibility of hazardous reactions

Formation of explosive gas mixtures with air.
Reactions with oxidizing agents.
Due to the rise in vapor pressure, an increase in temperature may cause safety valves to actuate or containers to burst.

10.4. Conditions to avoid

Never allow liquefied gas to escape unburned, as explosive gas/air mixtures may form.
Keep away from heat, hot surfaces, sparks, open flames, and other sources of ignition.
No smoking.

10.5. Incompatible materials

Can react violently with oxidizing substances, e.g., strong oxidizing agents.

10.6. Hazardous decomposition products

No hazardous decomposition products are formed during normal use and storage.
Hazardous combustion products are carbon monoxide (CO) and carbon dioxide (CO₂).

Abschnitt 11: Toxicological information

11.1 Information on toxicological effects

No test data are available for the complete mixture.

Classification procedure

The procedure for classifying the mixture is based on the mixture components (additivity formula).
Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Not classified as acutely toxic.
Propane: LC50 inhalation (rat):
658,000 mg/m³/4 h

Skin corrosion/irritation

Not classified as skin corrosive/irritant.

Serious eye damage/eye irritation

Not classified as causing serious eye damage or eye irritation.

Respiratory/skin sensitization

Not classified as a respiratory or skin allergen.

Germ cell mutagenicity

Not classified as a germ cell mutagen (mutagenic).

Carcinogenicity

Not classified as carcinogenic.

Reproductive toxicity

Not classified as toxic to reproduction.

Specific target organ toxicity

– single exposure

Not classified as specific target organ toxic (single exposure).

Specific target organ toxicity

– repeated exposure

Not classified as specific target organ toxic (repeated exposure).

Aspiration hazard

Not classified as an aspiration hazard.

Symptoms and effects (delayed and chronic) including routes of exposure also: information on toxicokinetics, metabolism, and distribution

Not relevant.

Section 12: Ecological information

12.1. Toxicity

No data available.

12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

Due to the low log Kow value ($\log Kow < 4$), bioaccumulation of the substance is not expected.

(See Section 9, Partition coefficient n-octanol/water).

12.4 Mobility in soil

Due to its high volatility, it is unlikely that the product will cause soil or water pollution.

12.5. Results of PBT and vPvB assessment

Not classified as PBT or vPvB.

12.6. Endocrine-disrupting and other harmful effects

None known.

12.7. Other adverse effects

None known.

Section 13: Disposal considerations

13.1 Waste treatment methods

Do not discharge into sewers, basements, work pits, or similar places where the accumulation of gas could become dangerous. For further information on waste disposal, see the EIGA Code of Practice (Doc. 30/10 „Disposal of gases“, available at <http://www.eiga.org>).

Ensure compliance with emission limits set by local regulations or operating permits.

13.1.1 Treatment of contaminated packaging

This is hazardous waste; only approved packaging (e.g., in accordance with ADR) may be used. Completely emptied packaging may be sent for recovery.

Contaminated packaging must be treated in the same way as the substance itself. Do not allow to enter the sewer system.

Avoid release to the environment.

Obtain special instructions/consult safety data sheet.

13.1.2 Waste Catalogue Ordinance (AVV)

Waste Catalogue Ordinance (AVV) Assignment of waste code numbers/waste descriptions must be carried out according to the EAKV (European Waste Catalogue Ordinance) based on the specific industry and process. Contact the competent authority regarding waste disposal.

13.1.3 Special precautions

None

13.2 Relevant EU or other regulations

Please observe relevant national or regional regulations. Waste must be segregated so that it can be treated separately by municipal or national waste disposal facilities.

Section 14: Transport information

14.1. Land transport (ADR/RID/GGVSEB)

ADR/RID/GGVSEB: Class 2

Hazard label: 2.1

Hazard identification number: 23

Classification code: 2F

Packing group: ---

UN-No.: 1965

Tunnel restriction code B/D

Proper shipping name (Propane):

Hydrocarbon gas

Mixture, liquefied, n.o.s. (Mixture C)

14.2.1 Inland waterway transport (ADN)

ADN/RID/GGVSEB: CIAA 2

Hazard label: 2.1

Hazard identification number: 23

Classification code: 2F

Packing group: ---

UN-No.: 1965

Proper shipping name (Propane):

Hydrocarbon gas

Mixture, liquefied, n.o.s. (Mixture C)

14.2.2 Maritime transport (IMDG Code)

IMDG/GGVSee-Code: Klasse 2.1

EmS: FD, SU

MFAG: 310

Marine pollutant: no

Verpackungsgruppe: ---

UN-No.: 1965

Proper shipping name (Propane):

Hydrocarbon gas

Mixture, liquefied, n.o.s. (Mixture C)

14.3 Air transport (ICAO-IATA/DGR)

ICAO/IATA-DRG: 2.1

ICAO-Pack. Group: ---

UN-No.: 1965

Bezeichnung des Gutes (Propan):

Hydrocarbon Gas Mixture, liquified, n.o.s.

contains Propane

Remarks: Transport on passenger aircraft prohibited.

Quantity limits apply to transport on cargo aircraft.

Transport/Postal shipment (Germany only):

For postal shipment, observe the General Terms and Conditions of Deutsche Post/DHL for domestic freight services.

14.4 Special precautions for the user

Observe transport instructions/leaflets.

Ensure load is secured. Transport even empty LPG cylinders only when tightly closed.

14.5 Transport in bulk according to Annex II of MARPOL Convention 73/78 and the IBC Code

Not applicable

14.6 Additional information

Important note regarding gas cylinders:

Abbreviated labeling permitted in accordance with Annex I, Section 1.3.2 of CLP Regulation (EC) No 1272/2008/GHS02 (Flame) is replaced by the ADR hazard label.

GHS04 (Gas cylinder) is omitted.

Section 15: Regulatory information

15.1 1 Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1 EU regulations

No specific EU regulations.

15.1.2 National regulations (Germany)

Employment restrictions:

Observe restrictions for young persons pursuant to §22 JArbSchG and for expectant mothers pursuant to §4 MuSchG.

Seveso-III-Directive (Störfallverordnung):

The product is subject to the Seveso-III-Directive at quantities of 50 t or more, or to the Federal Immission Control Act at quantities of 3 t or more.

The quantity thresholds specified therein must be observed.

TA Luft (2002): Chapters 5.2.5 and 5.2.6

WGK (Water hazard class): Not hazardous to water (AwSV of 01.08.2017, substance table no. 560 ... 562).

Other regulations, restrictions, and prohibitions: Observe the Ordinance on Industrial Safety and Health (BetrSichV)

including Technical Rules for Pressure Vessels (TRB) and Technical Rules for Hazardous Substances (TRGS)—specifically TRGS 510—as well as the accident prevention regulation DGUV Rule 110–010 and other guidelines from the relevant professional association (BG).

The Pre-packaged Goods Ordinance applies to LPG cylinders up to 10 kg.

15.2 Chemical safety assessment

Not available, as there is no registration requirement under REACH.

Section 16: Other information

16.1 Notes on changes

The safety data sheet has been revised compared to the previous version from 2021. The mixtures previously grouped together have been separated; there is now a dedicated safety data sheet for each product. The DVFG template served as the basis.

Changes have occurred in all chapters; therefore, a detailed itemization is omitted.

16.2 Abbreviations and acronyms

Explanations of the abbreviations used can be found in specialized legal and chemical literature.

16.3 Key references and data sources

Sources: German Liquid Gas Association (DVFG)

16.4 Classification of mixtures and evaluation method used according to Regulation (EC), No. 1207/2008 [CLP]

Product is a mixture according to CLP

16.5 Wording of H- and P-phrases (number and full text):

Hazard statements:

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

Precautionary statements:

Precautionary statements:

P102 Keep out of reach of children.

P210 Keep away from heat/sparks/open flame/hot surfaces. No smoking.

Response statements:

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 Eliminate all ignition sources if safe to do so.

Storage statements:

P410+P403 Protect from sunlight.

Store in a well-ventilated place.

16.6 Training advice

Product information for training purposes is available from the supplier at www.tyczka.de or from the German Liquid Gas Association (DVFG) at www.dvfg.de.

16.7 Other information

The information above is based on our current knowledge at the time of preparation.

However, it does not constitute a guarantee of product properties and does not establish a contractual legal relationship.

No warranty is given regarding accuracy or completeness.

Information und Service



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