

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

1.1 Product identifier

Trade name: Gaskartusche / Flüssiggasgemisch

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

General use: Fuel gases

1.3 Details of the supplier of the safety data sheet

Company name: Carl Friedrich Usbeck KG

Street/POB-No.: Industriestr. 12-14

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Department responsible for information:

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Distributor: Hounisen Laboratorieudstyr A/S, Niels Bohrs Vej 49, 8660 Skanderborg, Denmark

1.4 Emergency telephone number

**GIZ-Nord, Göttingen, Germany,
Telephone: +49 551-19240**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to EC regulation 1272/2008 (CLP)

Flam. Gas 1; H220 Extremely flammable gas.

Compr. Gas; H280 Contains gas under pressure; may explode if heated.

2.2 Label elements

Labelling (CLP)



Signal word:

Danger

Hazard statements:

H220 Extremely flammable gas.

Precautionary statements:

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.

P403 Store in a well-ventilated place.

Special labelling

Text for labelling:

Gas cartridge:

Container under pressure. Protect from direct exposure to sunlight and temperatures exceeding 50 °C. Do not open with force or incinerate, even when empty.

Do not spray on naked flames or any incandescent material.

Keep away from sources of ignition - No smoking.

Store out of the reach of children.

This cartridge corresponds to EN 417:2012.

2.3 Other hazards

Rapid evaporating can produce frostbites.

Inhalation of the product may cause giddiness, mild dizziness or headache. Inhalation causes narcotic effects/intoxication.

In case of high vapour concentrations: CNS disorders, unconsciousness. Even short-term inhalation of larger quantities of gas may cause death. Risk of suffocation!

Gas/vapour is heavier than air and can accumulate in closed spaces, particularly on the ground/in lower level areas. On contact with air, potentially explosive mixtures may develop. Ignition possible over a larger distance.

Endocrine disrupting properties, Results of PBT and vPvB assessment:

No data available

SECTION 3: Composition/information on ingredients

3.1 Substances: not applicable

3.2 Mixtures

Chemical characterisation: Hydrocarbon gas mixture.
Contents of 1,3-Butadiene < 0,1%

Hazardous ingredients:

Identifiers	Designation Classification	Content
EC No. 203-448-7 CAS 106-97-8	n-Butane, pure Flam. Gas 1; H220. Press. Gas (Liq.); H280.	70 %
EC No. 200-827-9 CAS 74-98-6	Propane Flam. Gas 1; H220. Press. Gas (Liq.); H280.	30 %

Full text of H- and EUH-statements: see section 16.

Additional information: This cartridge corresponds to EN 417:2012.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information: First aider: Pay attention to self-protection! Risk of suffocation!
Keep upwind. Remove carefully gas contaminated clothing.
If victim is at risk of losing consciousness, position and transport on their side.
Consult immediately first-aid doctor.

In case of inhalation: Move victim to fresh air, put at rest and loosen restrictive clothing.
If the casualty has difficulty breathing, call a doctor immediately.
If breathing becomes irregular or ceases, apply rescue breathing or artificial respiration immediately, where required supply oxygen. If victim is at risk of losing consciousness, position and transport on their side.

Following skin contact: In the event of cold burns, wash with water for at least 15 minutes.
Do not open blister. Cover frostbitten skin with sterile tissue. Seek medical attention.

After eye contact: Contact with the product can cause cold burns or frostbite.
Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart.
Apply bandage with sterile gauze. Seek the attention of an ophthalmologist immediately.

After swallowing: Swallowing is not regarded as a possible way of exposition.

4.2 Most important symptoms and effects, both acute and delayed

The following symptoms may occur: Headache, nausea, drowsiness, dizziness, shortage of breath, unconsciousness, frostbite.

In case of inhalation: Inhalation causes narcotic effects/intoxication.

In case of prolonged exposure: Nausea, drowsiness, headache, agitation, fatigue, dizziness, unconsciousness.

In case of high vapour concentrations: CNS disorders, unconsciousness.

Even short-term inhalation of larger quantities of gas may cause death. Risk of suffocation!

After contact with skin: Danger of freezing: Whitening of skin (skin emphysema).

After eye contact: Frostbite: Risk of serious damage to eyes.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Where appropriate artificial ventilation.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Extinguishing powder, carbon dioxide, foam, sand.

Extinguishing media which must not be used for safety reasons:

Full water jet

5.2 Special hazards arising from the substance or mixture

Extremely flammable gas. Vapours form potentially explosive mixtures with air. Heavier than air, they proceed at floor level and may backflash over great distances when ignited. ATTENTION: re-ignition may occur.

In case of surrounding fires: Danger of bursting container.

In case of fire may be liberated: Carbon monoxide and carbon dioxide.

5.3 Advice for firefighters

Special protective equipment for firefighters:

Wear self-contained positive pressure breathing apparatus and full firefighting protective clothing.

Additional information:

Remove all sources of ignition. If possible, stop flow of product.

Cool endangered containers with water spray and, if possible, remove from danger zone. risk of bursting/explosion!

Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous, explosive re-ignition is possible. Extinguish any other fire.

In case of large-scale fires, block off the surrounding area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation, and local exhaust as needed. Keep away ignition sources. In case of gas leakage, leave the room immediately. Keep unprotected people away. Cordon off downwind area at risk and warn inhabitants. Do not breathe gas. Risk of suffocation!
Avoid contact with skin and eyes. Remove carefully gas contaminated clothing.

In enclosed areas: Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

6.2 Environmental precautions

Put leaky containers in a specially labelled cask or recovery drum. Dispose of in accordance with the regulations.

Prevent penetration into canalization, pits and cellars. Danger of explosion!

In case of release, notify competent authorities.

6.3 Methods and material for containment and cleaning up

If possible, stop flow of product.

Liquid: Leave to vapourize. Provide adequate ventilation.

Swirl explosive gas-air mixtures with water.

Additional information: Remove all sources of ignition. Use only spark proof tools. Beware of reignition.

Noxious concentrations accumulate rapidly.

On contact with air, potentially explosive mixtures may develop.

6.4 Reference to other sections

Refer additionally to section 8 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advices on safe handling: In case of spill or release: Use local exhaust. Use only in well-ventilated areas. Do not breathe vapours. Avoid contact with skin and eyes. Use only antistatically equipped (spark-free) tools.

Wear antistatic work clothing.

Permanent monitoring of the impermeability of installations, instruments and containers is needed.

Open valve slowly. Avoid impurification of the product by foreign substances.

Precautions against fire and explosion:

Avoid open flames. Avoid sparks.

Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharges.

Electrical equipment must be explosion protected according to standards.

Limit flow speed during pumping process to avoid electrostatic charging.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storerooms and containers:

Keep in a cool, well-ventilated place.

Store containers in upright position. Never let pressurized containers (pressurized gas bottled) fall.

Keep valve tightly closed. Seal all low level rooms.

Keep only in the original container.

Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

Hints on joint storage: Do not store together with highly flammable or combustible materials.

Keep away from food, drink and animal feedingstuffs.

Further details: To follow: Explosion protection guidelines (Ex-RL).

Gas cartridge:

Container under pressure. Protect from direct exposure to sunlight and temperatures exceeding 50 °C. Do not open with force or incinerate, even when empty.

Do not spray on naked flames or any incandescent material.

Keep away from sources of ignition - No smoking.

Store out of the reach of children.

This cartridge corresponds to EN 417:2012.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Additional information: Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Use only in well-ventilated areas.

Permanent monitoring of the impermeability of installations, instruments and containers is needed.

Personal protection equipment

Occupational exposure controls

Respiratory protection: Respiratory protection must be worn whenever the WEL levels have been exceeded. Use filter type A (= against vapours of organic substances) according to BS EN 14387. The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used. At high concentrations: Wear self-contained breathing apparatus.

Hand protection: Protective gloves against coldness according to EN 511.
Glove material: Leather
Observe glove manufacturer's instructions concerning penetrability and breakthrough time.

Eye protection: Tightly sealed goggles according to EN 166.

Body protection: Flame retardant, antistatic and chemical resistant protective clothing.

General protection and hygiene measures:
When using do not eat, drink or smoke.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Do not pierce or burn, even after use. Do not breathe gas. Risk of suffocation! Avoid contact with skin and eyes. Wash hands before breaks and after work.
In the event of cold burns, wash with water for at least 15 minutes. Remove carefully gas contaminated clothing.

Environmental exposure controls

Refer to "6.2 Environmental precautions".

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state at 20 °C and 101.3 kPa	gaseous
	Form: Compressed, liquefied gas
Colour:	colourless
Odour:	Perceptible
Odour threshold:	No data available
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	-27 °C
Flammability:	Extremely flammable gas.
Upper/lower flammability or explosive limits:	LEL (Lower Explosion Limit): approx. 1.50 Vol-% UEL (Upper Explosive Limit): approx. 11.00 Vol-%
Flash point/flash point range:	(Propane/n-Butane) -104 - -60 °C
Auto-ignition temperature:	approx. 400 °C (DIN 51794)
Decomposition temperature:	No data available
pH:	Not applicable
Viscosity, kinematic:	No data available

Water solubility:	at 20 °C: practically insoluble
Partition coefficient: n-octanol/water:	No data available
Vapour pressure:	at 25 °C: 2426 hPa (n-Butane) at 70 °C: <= 38000 hPa
Density:	at 20 °C: >= 0.5 kg/m ³ (DIN 51618)
Vapour density:	No data available
Particle characteristics:	Not applicable

9.2 Other information

Explosive properties:	Vapours can form explosive mixtures with air.
Oxidizing characteristics:	No data available
Auto-ignition temperature:	No data available
Evaporation rate:	No data available
Additional information:	Information about n-Butane: Odour threshold: 2.9 - 14.6 mg/m ³ Relative vapour density at 20 °C (air=1): 2.07 critical pressure: 35.7 atm critical temperature 153.2 °C Information about Propane: Odour threshold: 5000 - 20000 ppm Relative vapour density at 20 °C (air=1): 1.56 critical pressure: 42.01 atm critical temperature: 96.81 °C Vapour pressure at 25 °C: 9533 hPa

SECTION 10: Stability and reactivity

10.1 Reactivity

Extremely flammable gas. On contact with air, potentially explosive mixtures may develop.
In case of warming:
Danger of spontaneous combustion. Danger of bursting container.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Reacts instantaneously (explosion) with strong oxidizing agents, fluorine, chlorine, nitrogen oxides (NO_x) and Oxygen.
Heating will lead to pressure increase: Danger of bursting and explosion.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not pierce or burn, even after use.
Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

10.5 Incompatible materials

Strong oxidizing agents, fluorine, chlorine, nitrogen oxides (NO_x), Oxygen.

10.6 Hazardous decomposition products

Thermal decomposition:	No decomposition when used properly. No data available
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SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicological effects:

- Acute toxicity (oral): Lack of data.
- Acute toxicity (dermal): Lack of data.
- Acute toxicity (inhalative): Lack of data.
- Skin corrosion/irritation: Lack of data.
- Serious eye damage/irritation: Lack of data.
- Sensitisation to the respiratory tract: Lack of data.
- Skin sensitisation: Lack of data.
- Germ cell mutagenicity/Genotoxicity: Lack of data.
- Carcinogenicity: Lack of data.
- Reproductive toxicity: Lack of data.
- Effects on or via lactation: Lack of data.
- Specific target organ toxicity (single exposure): Lack of data.
- Specific target organ toxicity (repeated exposure): Lack of data.
- Aspiration hazard: Lack of data.

11.2 Information on other hazards

Endocrine disrupting properties: No data available

Other information:

- Information about n-Butane:
LC50 Rat, inhalative: 658 mg/L/4h
- Information about Propane:
LC50 Rat, inhalative: 280000 ppm

Symptoms

The following symptoms may occur: Headache, nausea, drowsiness, dizziness, shortage of breath, unconsciousness, frostbite.

In case of inhalation: Inhalation causes narcotic effects/intoxication.

In case of prolonged exposure: Nausea, drowsiness, headache, agitation, fatigue, dizziness, unconsciousness.

In case of high vapour concentrations: CNS disorders, unconsciousness.

Even short-term inhalation of larger quantities of gas may cause death. Risk of suffocation!

After contact with skin: Danger of freezing: Whitening of skin (skin emphysema).

After eye contact: Frostbite: Risk of serious damage to eyes.

SECTION 12: Ecological information

12.1 Toxicity

Further details: No data available

12.2 Persistence and degradability

Further details:

- Liquid evaporates very quickly. Potentially explosive mixtures with air may form above water surface.
- Air: Photo-chemical elimination.

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water:
No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

General information: Discharge into the environment must be avoided.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste key number: 16 05 04* = Gases in pressure containers (including halons) containing hazardous substances: n-Butane, Propane
* = Evidence for disposal must be provided.

Recommendation: Do not discharge into areas where there is a risk of forming an explosive mixture with air.
Dispose of waste according to applicable legislation.

Package

Waste key number: 15 01 04 = metallic packaging.

Recommendation: Dispose of gas cartridges as residual waste only if they are empty.

SECTION 14: Transport information

14.1 UN number or ID number

ADR/RID, ADN, IMDG, IATA-DGR:

UN 2037

14.2 UN proper shipping name

ADR/RID, ADN, IMDG: UN 2037, RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES)

IATA-DGR: UN 2037, RECEPTACLES, SMALL, CONTAINING GAS

14.3 Transport hazard class(es)

ADR/RID, ADN: Class 2, Code: 5F

IMDG: Class 2, Subrisk -

IATA-DGR: Class 2.1

14.4 Packing group

ADR/RID, ADN, IMDG, IATA-DGR:

not applicable

14.5 Environmental hazards

Dangerous for the environment: Substance/mixture is not environmentally hazardous according to the criteria of the UN model regulations.

Marine pollutant - IMDG: no

14.6 Special precautions for user

Land transport (ADR/RID)

Warning board: RID: Kemmler-number 23, UN number UN 2037
Hazard label: 2.1
Special Provisions: 191 303 327 344
Limited quantities: 1 L
EQ: E0
Package - Instructions: P003 LP200
Package - Special Provisions: PP17 PP96 L2 RR6
Special provisions for packing together: MP9
Tunnel restriction code: D



Inland waterway craft (ADN)

Hazard label: 2.1
Special Provisions: 191 303 327 344
Limited quantities: 1 L
EQ: E0
Equipment necessary: PP, EX, A
ventilation: VE01



Sea transport (IMDG)

EmS: F-D, S-U
Special Provisions: 191 277 303 327 344 959
Limited quantities: See SP277
Excepted quantities: E0
Package - Instructions: P003, LP200
Package - Provisions: PP17, PP96, L2
IBC - Instructions: -
IBC - Provisions: -
Tank instructions - IMO: -
Tank instructions - UN: -
Tank instructions - Provisions: -
Stowage and handling: Category B. SW2 SW22
Properties and observations: Normally contain mixtures of liquefied butane and propane in various proportions for use in camping stoves, etc.
Segregation group: none

Air transport (IATA)

Hazard label: Flamm. gas
Excepted Quantity Code: E0
Passenger and Cargo Aircraft: Ltd.Qty.: Pack.Instr. Y203 - Max. Net Qty/Pkg. 1 kg
Passenger and Cargo Aircraft: Pack.Instr. 203 - Max. Net Qty/Pkg. 1 kg
Cargo Aircraft only: Pack.Instr. 203 - Max. Net Qty/Pkg. 15 kg
Special Provisions: A145 A167 A802
Emergency Response Guide-Code (ERG): 10L



14.7 Maritime transport in bulk according to IMO instruments

No data available

SECTION 15: Regulatory information

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

National regulations - EC member states

Volatile organic compounds (VOC):
100 % by weight

Further regulations, limitations and legal requirements:

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances
[Seveso-III-Directive]

Physical hazards: Code P2, Quantity threshold 10 000 kg / 50 000 kg

Use restriction according to REACH annex XVII, no.: 40

15.2 Chemical Safety Assessment

For this mixture a chemical safety assessment is not required.

SECTION 16: Other information

Wording of the H-phrases under paragraph 2 and 3:

H220 = Extremely flammable gas.

H280 = Contains gas under pressure; may explode if heated.

Reason of change: Changes in section 14: IATA-DGR 2023

Date of first version: 17/1/2012

Department issuing data sheet: see section 1: Department responsible for information

Abbreviations and acronyms: 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
AS/NZS: Australian Standards/New Zealand Standards
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
CLP: Classification, Labelling and Packaging
CNS: Central Nervous System
DIN: German Institute for Standardization
DMEL: Derived minimal effect level
DNEL: Derived no-effect level
EC: European Community
EN: European Standard
EQ: Excepted quantities
EU: European Union
Flam. Gas: Flammable gases
IATA: International Air Transport Association
IATA-DGR: International Air Transport Association – Dangerous Goods Regulations
IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IMDG Code: International Maritime Dangerous Goods Code
LC50: Median lethal concentration
LEL: Lower Explosion Limit
MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
NF: French Standard
OEL: Occupational Exposure Limit Value
OSHA: Occupational Safety and Health Administration
PBT: Persistent, bioaccumulative and toxic
PNEC: Predicted no-effect concentration
Press. Gas: Gases under pressure
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail
TLV: Threshold Limit Value
TRGS: Technical Rules for Hazardous Substances
UN: United Nations
vPvB: Very persistent and very bioaccumulative
WEL: Workplace Exposure Limit

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.