

## 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  
Postal Code, city: 42477 Radevormwald  
WWW: www.usbeck.eu  
E-mail: info@usbeck.eu  
Telephone: + 49 2195 9118-0  
Telefax: + 49 2195 9118-40  
Department responsible for information:  
Herr Usbeck,  
Telephone: + 49 2195 9118-0,  
Telefax: + 49 2195 9118-40,  
E-mail: info@usbeck.eu

### 1.4 Emergency telephone number

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

Lieferant / Supplier:  
Carl Roth GmbH + Co KG  
Schoemperlenstr. 3-5  
76185 Karlsruhe, Germany  
+49 721 5606 0  
sicherheit@carlroth.de

## 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.

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### 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. Take normal precautions in handling aerosol products.

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.

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:

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

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.

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- 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: Hazchem-Code: -
- 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.

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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. Take normal precautions in handling aerosol products.  
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

Occupational exposure limit values:

CAS No.	Designation	Type	Limit value
106-97-8	n-Butane, pure	Great Britain: WEL-STEL Great Britain: WEL-TWA	1810 mg/m <sup>3</sup> ; 750 ppm 1450 mg/m <sup>3</sup> ; 600 ppm

### 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 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".

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### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

Appearance:	Physical state at 20 °C and 101.3 kPa: gaseous Form: Compressed, liquefied gas Colour: colourless
Odour:	Perceptible
Odour threshold:	No data available
pH:	Not applicable
Melting point/freezing point:	No data available
Initial boiling point and boiling range:	-27 °C
Flash point/flash point range:	(Propane/n-Butane) -104 - -60 °C
Evaporation rate:	No data available
Flammability:	Extremely flammable gas.
Explosion limits:	LEL (Lower Explosion Limit): approx. 1.50 Vol-% UEL (Upper Explosive Limit): approx. 11.00 Vol-%
Vapour pressure:	at 25 °C: 2426 hPa (n-Butane) at 70 °C: <= 38000 hPa
Vapour density:	No data available
Density:	at 20 °C: >= 0.5 kg/m <sup>3</sup> (DIN 51618)
Water solubility:	at 20 °C: practically insoluble
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity, kinematic:	No data available
Explosive properties:	Vapours can form explosive mixtures with air.
Oxidizing characteristics:	No data available

#### 9.2 Other information

Ignition temperature:	approx. 400 °C (DIN 51794)
Additional information:	Information about n-Butane: Odour threshold: 2.9 - 14.6 mg/m <sup>3</sup> 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 (NOx) 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 (NOx), Oxygen.

## 10.6 Hazardous decomposition products

No decomposition when used properly.

Thermal decomposition: No data available

# SECTION 11: Toxicological information

## 11.1 Information on toxicological effects

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.

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 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

ADR/RID, IMDG, IATA-DGR:

UN 2037

### 14.2 UN proper shipping name

ADR/RID, 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:

Class 2, Code: 5F

IMDG:

Class 2, Subrisk -

IATA-DGR:

Class 2.1



### 14.4 Packing group

ADR/RID, IATA-DGR:

not applicable

IMDG:

-

### 14.5 Environmental hazards

Marine pollutant:

NO

### 14.6 Special precautions for user

#### Sea transport (IMDG)

EmS:

F-D, S-U

Segregation group:

none

#### Air transport (IATA)

Hazard label:

Flamm. gas

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

No data available

## SECTION 15: Regulatory information

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

#### National regulations - Great Britain

Hazchem-Code:

-

No data available

#### National regulations - EC member states

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

### Further information

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

H220 = Extremely flammable gas.

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

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

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

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

Reason of change: General revision

Date of first version: 17/1/2012

### Department issuing data sheet

Contact person: see section 1: Department responsible for information

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.