

# SAFETY DATA SHEET

Reimo Reisemobil-Center GmbH

Safety Data Sheet according to Directive 1907/2006/EC, Article 31, Annex II, and TRGS 220 (Germany)

Product name: **BUTAN / PROPAN GASKARTUSCHE 450; GAS CARTRIDGE 450**

Date of issue: 4 Aug., 2023

Date of last revision:

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## SECTION 1: Product and Company Identification

*Trade name:* **BUTAN / PROPAN GASKARTUSCHE 450  
GAS CARTRIDGE 450**

*Product No.:* 942001

*Product utilisation:* Gas cartridges with screw cap and valve for gas cooker

*Manufacturer/Supplier:* **Reimo Reisemobil-Center GmbH**  
D-63329 Egelsbach, Boschring 10, Germany  
Ph.: ++49 (0) 6150 8662 330  
Fax: +49 (0) 6150 8662 177  
E-mail: shop@reimo.com  
Internet: www.reimo.com

*Person in charge:* Technical advice, ph.: +49 (0) 6150 8662 330  
Fax: +49 (0) 6150 8662 177

*Emergency telephone code:* +49 (0) 6150 8662 330

## SECTION 2: Hazards Identification

2.1 *General Information:* 450 g of extremely flammable gas is enclosed in a gas tight cartridge made of steel and equipped with a screw cap combined with a valve. The gas pressure is 5 bar at 50°C. If heated it may explode. If gas is leaking, e. g. when a camping gas cooker is screwed to the cartridge, it may explode on hot surfaces, or by sparks, open flames and other ignition sources.

2.2 *Classification and labelling according to Directive 1272/2008/EC)*

Flammable gases, Category 1; H220  
Gases under pressure, liquefied gas; H280



Signal word: "Danger"

*Hazard statements (H-Phrases):*

H220: Extremely flammable gas.  
H280: Contains gas under pressure; may explode if heated.

*P-Phrases:*

*Precautionary Statements – Prevention:*

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.

*Other hazards:*

Contact with the evaporating liquid can cause frostbite on skin.

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**COLOUR CODING OF GAS CYLINDERS**

 Shoulder colour: Red  
(flammable gases)

**2.3 Information pertaining to particular dangers to man and the environment:**

Cold damage to the eyes and skin following contact with the liquefied gas is very likely. After inhaling high concentrations of the gas disturbances of the central nervous system and heart function may occur, and it may be suffocating due to displacement of oxygen. First narcotic effects can be observed starting at 10000 ppm (1%) with symptoms such as weakness, headache, nausea, vomiting, dazed feeling and sleepiness. Apparently, the gas also has an euphoriant effect.

The substance is subject to the hazard categories of the Hazardous Incident Ordinance [Directive 2012/18/EU (Seveso III)]:

P2 Flammable gases, Category 1 or 2

Highly inflammable, may explode with air when burning or overheating.

**SECTION 3: Composition / Information on Ingredients**

**3.1 Characterization:** Gas cartridge containing a mixture of propene, two isomers of butene and an impurity of < 0.1% butadiene. The cartridge is made of steel and is equipped with a screw cap valve. The pressure is 5 bar at 50°C.

**3.2 Hazardous ingredients:**

*Classification of the pure ingredients according to Directive 1272/2008/EC (GHS), table 3*

Common or chemical name	CAS No.	EC No.	percentage by weight <sup>1)</sup>
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<b>Isobutane</b>	75-28-5	200-857-2	< 60
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*Synonyms:* iso-Butane; i-Butane; i-Methyl ethyl methane; 2-Methyl propane; Trimethyl methane

*Substance group code:* 140110: Hydrocarbons, aliphatic, saturated; 162000: Organic gases

Flammable gases, Category 1; H220

Gases under pressure, liquefied gas; H280



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<i>Common or chemical name</i>	<i>CAS No.</i>	<i>EC No.</i>	<i>percentage by weight<sup>1)</sup></i>
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<b>n-Butane:</b>	106-97-8	203-448-7	< 20
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*Synonyms:* Butane; R 600  
*Substance group code:* 140110: Hydrocarbons, aliphatic, saturated; 162000: Organic gases

Flammable gases, Category 1; H220  
 Gases under pressure, liquefied gas; H280



Signal word: "Danger"

H220: Extremely flammable gas.  
 H280: Contains gas under pressure; may explode if heated.

<i>Common or chemical name</i>	<i>CAS No.</i>	<i>EC No.</i>	<i>percentage by weight<sup>1)</sup></i>
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<b>Propane</b>	74-98-6	200-827-9	20 - 24
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*Synonyms:* n-Propane; R 290  
*Substance group code:* 140110: Hydrocarbons, aliphatic, saturated; 162000: Organic gases

Flammable gases, Category 1; H220  
 Gases under pressure, liquefied gas; H280



Signal word: "Danger"

H220: Extremely flammable gas.  
 H280: Contains gas under pressure; may explode if heated.

<i>Common or chemical name</i>	<i>CAS No.</i>	<i>EC No.</i>	<i>percentage by weight<sup>1)</sup></i>
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<b>1,3-Butadiene</b>	106-99-0	203-450-8	< 0.1
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*Synonyms:* Buta-1,3-diene; Vinylethylene; Bivinyll; Divinyll; Biethylene; Diethylene  
*Substance group code:* 140120: Hydrocarbons, aliphatic, unsaturated; 162000: Organic gases

Flammable gases, Category 1; H220  
 Gases under pressure, liquefied gas; H280  
 Germ cell mutagenicity, Category 1B; H340  
 Carcinogenicity, Category 1A; H350



Signal word: „Danger“

H220: Extremely flammable gas.  
 H280: Contains gas under pressure; may explode if heated  
 H340: May cause genetic defects.  
 H350: May cause cancer.

<sup>1)</sup>: Percentage in relation to the total amount of gas (450 g), not to the whole cartridge.



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### 3.3 Other ingredients:

Common or chemical name	CAS No.	EC No.	Chemical Nature
<b>Steel</b> (218 g including the rubber seal)	n. a.	n. a.	Iron-carbon-alloy
<b>Rubber</b> (< 3 g)	n. a.	n. a.	Synthetics as rubber seal for valve

### SECTION 4: First Aid Measures

**General information:** The main intake pathway for the gases is via the respiratory tract. Other intake pathways are negligible, but liquefied gases can cause a sensation of cold and even frostbite on the eyes and skin or other contacted tissues due to the strong cold resulting from evaporation.

**Inhalation of gases:** Move the affected person into fresh air. Lay the casualty down in a quiet place and protect him against hypothermia. In the case of breathing difficulties have the casualty inhale oxygen. Arrange medical treatment. If the casualty has stopped breathing give mouth to nose resuscitation. If this is not possible use mouth to mouth resuscitation. Keep his respiratory tract clear.

**Skin:** Following contact with liquefied or expanding gas, initially thaw clothing which has frozen onto the body with a lot of cold or lukewarm water and then remove it carefully. Rinse any skin areas suspected of being frozen caused by contact with subcooled gas with cold/lukewarm water (by no means > 40°C). Cover affected skin areas with a sterile covering.

**Eyes:** Following contact with the liquefied or expanding cold gas: Rinse eyes only briefly with water at normal temperature (but no longer than 10 - 30 sec). Do not spread the eyelids, leave contact lenses in place. Then, immediately transport the casualty to an eye doctor / to hospital.

**Ingestion:** Swallowing of the subcooled liquid is hardly conceivable. If this has nevertheless occurred: Rinse the mouth and spit the fluids out. Have the casualty drink some water in small sips. Call a physician to the site of the accident.

**Information for doctor:** Gaseous butanes or propene do not cause irritation but following expansion from gas bottles it could cause frostbite. Systemic effects are expected at very high concentrations.

### SECTION 5: Fire Fighting Measures

**General information:** Classes of fires: C (gaseous, also compressed substances)

**Extinguishing agents:** Water (spray - not splash). Dry extinguishing powder.

**Not suitable extinguishing agents for safety reasons:** Carbon dioxide.

**Special hazards:** Extremely flammable gases. Heating of the cartridges causes a rise in pressure, risk of bursting and explosion. Also risk of explosion from gas accumulation and backfire. Be watchful for frostbite in case of contact with fluid.



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*Special protective*

*equipment for fire-fighters:*

Wear self-contained breathing apparatus. Use only explosion proved equipment. Besides the gases, carbon monoxide and carbon dioxide can be released.

*Further notice:*

Shut off sources of ignition. Only put out fire if the gas flow can be interrupted. Cool endangered cartridges with water spray from a protected position. If possible, take cartridges out of dangerous zone.

## SECTION 6: Accidental Measures after Release of Ingredients

*General information:*

Shut off all sources of ignition immediately. Provide adequate ventilation. Gas is moving on the ground.

*Personal precaution:*

Leave the endangered area immediately and warn co-workers. Ventilate the area. Consider the risk of potentially explosive atmospheres. The hazardous area may only be entered with an explosion proved self-contained breathing apparatus unless the harmlessness of the atmosphere is proven. Attempt to stop the gas from escaping. Otherwise place leaky bottles under a suctioning device or put them outdoors. Do not touch the leak source directly. If only one or two cartridges are leaking evacuate area until all the leaked liquid has evaporated. If gas is released outside, stay on the side facing the wind.

*Environmental precaution:*

Prevent from entering sewers, basements, work pits or other places where the accumulation of gas could be dangerous. No hazards to sources of water if released into water, drainage, sewer, or the ground.

*Methods for cleaning up:*

Release to the atmosphere, if the gas cannot be withdrawn by suction.

## SECTION 7: Handling and Storage

*Handling:*

Protect cartridges from mechanical damage; do not pull, roll, push or drop. When changing cartridges, always inspect the leak-proof closure of the filled and empty cartridges. Open valves slowly to avoid pressure surges, do not force open. Close valves after each use. Keep valve connections of the cartridges clean and free of impurities, especially free of oil and water.

*Notes for prevention of fire and explosion:*

Do not heat the cartridges either by sun or other heat sources. Shut off all sources of ignition before connecting the cartridge to a cooker. Open valve of the cooker only as slowly as possible and keep away from combustible materials before igniting the gas.

*Storage:*

Keep cartridges alone or with connected cooker tightly closed. Store cartridges below 50 °C in a well-ventilated place without fire hazard and away from heat and ignition sources. Protect from exposure to sunlight. German VCI-class of storage: 2 A (Gases, TRGS 510). Only substances of the same storage class should be stored together.

## SECTION 8: Exposure Controls / Personal Protection

*8.1 Technical protection:*

Keep cartridges alone or with connected cooker tightly closed. Protect cartridges from mechanical damage. Keep away from combustible materials.



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## 8.2 Ingredients with occupational exposure limit values:

### Isobutane, n-Butane

- CAS No.: 75-28-5, 106-97-8, respectively
- Exposure limit value: 2400 mg/m<sup>3</sup> (1000 ml/m<sup>3</sup>)
- Short term limit value: 4 (II)
- Origin: AGW; TRGS 900; Recommendation of the MAK-KOMMISSION, Germany
- BLV: None
- Remarks: Pregnancy: Group D
- Year: 2023

### Propane

- CAS No.: 74-98-6
- Exposure limit value: 1800 mg/m<sup>3</sup> (1000 ml/m<sup>3</sup>)
- Short term limit value: 4 (II)
- Origin: AGW; TRGS 900; Recommendation of the MAK-KOMMISSION, Germany
- BLV: None
- Remarks: Pregnancy: Group D
- Year: 2023

### 1,3-Butadiene (possible impurity < 0.1%)

- CAS No.: 106-99-0
- Exposure limit value (EC): 2.2 mg/m<sup>3</sup> (1 ppm)
- Short term limit value: None
- Origin: Directive 2019/130/EC
- Acceptance concentration: 0.5 mg/m<sup>3</sup> (0.2 ppm)
- Tolerance concentration: 5 mg/m<sup>3</sup> (2 ppm)
- Excursion factor: 8
- Substance-specific equivalent values in biological materials for acceptance concentration:
  - A) 600 µg/g creatinine; parameter: 3,4- Dihydroxybutylmercapturic acid (DHBMA); assay material: Urine; sampling time: end of exposure/end of shift; for long-term exposure: at end of shift after several shifts.
  - B) 10 µg/g creatinine; parameter: 2-Hydroxy-3-butenylmercapturic acid (MHBMA); assay material: Urine; sampling time: end of exposure/end of shift; for long-term exposure: at end of shift after several shifts.
- Substance-specific equivalent values in biological materials for tolerance concentration:
  - A) 2900 µg/g creatinine; parameter: 3,4- Dihydroxybutylmercapturic acid (DHBMA); assay material: Urine; sampling time: end of exposure/end of shift; for long-term exposure: at end of shift after several shifts.
  - B) 80 µg/g creatinine; parameter: 2-Hydroxy-3-butenylmercapturic acid (MHBMA); assay material: Urine; sampling time: end of exposure/end of shift; for long-term exposure: at end of shift after several shifts.
- Origin: TRGS 910 (Risk-related concept of measures for activities involving carcinogenic hazardous substances), last revision: GMBI 2023 No. 32 p. 679 of 5.May, 2023)
- Remarks: Carcinogenic: Category 1; Germ cells mutagenic: Category 2



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- *Origin:* Recommendation of the MAK-KOMMISSION, Germany  
- *Year:* 2023

### Explanations:

- *AGW* Exposure limit value (refer to TRGS 900, last revision: GMBI 2023, p. 755-756 of 12 June, 2023).  
- *Acceptance concentration* Acceptance concentration associated with risk 4:10,000.  
- *BLV:* Biological Limit Value (refer to TRGS 903, Germany, last revision: GMBI 2023, p. 756 of 12 June, 2023).  
- *Short term limit values:* Exceeding factor X: Exposure may exceed the exposure limit value by the factor X for not longer than 15 minutes. 4 measurements at intervals of 1 hour.  
Exceeding factor =X=: Exposure must never exceed the exposure limit value by more than the factor X (instantaneous value). If there is no short term limit value, the exceeding factor is 8.  
(I): Category I: substances for which the exposure limit value is based on local effects or sensitizing substances.  
(II): Category II: substances effective by resorption.  
- *Remarks::* H : Substances effective by resorption through skin.  
S = Sensitizing substance.  
Y, C (DFG): There is no teratogenic risk if the exposure limit value and the BLV are maintained.  
D (Pregnancy Group): Either there are no data for an assesment of damage to the embryo or foetus or the currently available data are not sufficient for classification in one of the groups A, B or C.

### 8.3 Personal Protection:

*Respiratory protection:* Use an explosion proved self-contained breathing apparatus.  
Respiratory protection: Gas filter AX, colour code brown.  
*Hand protection:* Use thick gloves if contact with liquefied or expanding gas may be possible.  
*Eye protection:* Safety glasses with side shield.  
*Skin protection:* Use thick clothing if contact with liquefied or expanding gas may be possible.  
*General protective measures:* Avoid contact with eyes and skin. Do not inhale gases.  
*Industrial hygiene:* Wash hands or skin after contact immediately. Do not eat, drink, smoke or take snuff at work.

## SECTION 9: Physical and Chemical Properties

### 9.1 Appearance

*Physical state:* Gas, liquid at low temperature, high pressure.  
*Colour:* Colourless.  
*Odour:* None.

### 9.2 Relevant data for Safety and Health for the product (GESTIS):

*Melting point/ range:* Not determined. Between -138.29 °C (Propane) and -187.7 °C (n-Butane).  
*Boiling point / range:* Not determined. Between -0.5°C (n-Butane) and -42.1 °C (Propane).



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<i>Flash range:</i>	Not determined. -60 °C (n-Butane), -83 °C Isopropane, -104 °C (Propane).
<i>Ignition temperature:</i>	Not determined. 65 °C (n-Butane), 460 °C (Isobutane), 470 °C (Propane).
<i>Autoignition temperature:</i>	Not determined.
<i>Explosive range:</i>	
<i>Lower explosion limit:</i>	Not determined. 1.5 mol% (Isobutane; ideal gas: mol% = vol.%), 1.4 vol.% (33 g/m <sup>3</sup> ; n-Butane), 1.7 mol% (Propane, ideal gas: mol% = vol.%).
<i>Upper explosion limit:</i>	Not determined. 9.4 mol% (Isobutane; ideal gas: mol% = vol.%), 9,4 vol.% (231 g/m <sup>3</sup> , n-Butane), 10,8 mol% (Propane, ideal gas: mol% = vol.%).
<i>Vapour pressure:</i>	5 bar at 50°C within the cartridge.
<i>Relative Density:</i>	Not determined. 2,07 (Isobutane), 2,08 (n-Butane), 1,55 (Propane).
<i>Solubility in water:</i>	Not determined. 49 mg/l (Isobutane, 20°C), 61 mg/l (n-Butane, 20°C), 42,4 ml/l (Propane, 20°C).
<i>Solubility in organic solvents:</i>	Not determined.
<i>pH-value:</i>	Not applicable.
<i>Partition coefficient n-octanol/water:</i>	Not determined. log Kow: 2,76 (Isobutane), log Kow: 2,89 (n-Butane), log Kow: 2,36 (Propane).
<i>Viscosity:</i>	Not determined.

## SECTION 10: Stability and Reactivity

<i>Thermal decomposition:</i>	About 260°C (The lowest temperature of all substances) (MSDS of supplier).
<i>Conditions to be avoided:</i>	Heating above 50°C. Direct sunlight. Damage of the cartridge or the valve. Sources of ignition, especially when connecting the cartridge to a cooker. Keep away from inflammable and combustible materials.
<i>Substances to be avoided:</i>	Strong oxidizing agents (halogenes, nitriles, hydrogen peroxide, perchloric acid, aqua regia, etc.).
<i>Dangerous reactions:</i>	May form explosive atmosphere with air or oxygen.
<i>Hazardous decomposition products:</i>	Carbon monoxide, Carbon dioxide.
<i>Dangerous polymerisations:</i>	None.

## SECTION 11: Toxicological Information

### 11.1 Product

As long as the cartridge is not leaking and the cartridge is not heated over 50°C no harmful effects on human health are to be expected.

*Gas mixture:*

*Acute toxicity:*

*After Inhalation:* Disturbances of the central nervous system and heart function due to very high concentrations of the gas; suffocating effect due to displacement of oxygen.





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<i>After eye or skin contact:</i>	Cold damage to the eyes and skin following contact with the liquefied or expanding gas. No irritation.
<i>After ingestion:</i>	Swallowing of the subcooled liquid is hardly conceivable (Refer to SECTION 4).
<i>Sensitization:</i>	No sensitization effects are known.
<i>Mutagenicity:</i>	No mutagenic effects are to be expected. Only 1,3-Butadiene is considered to be mutagenic at a concentration of > 1%.
<i>Cancer:</i>	No carcinogenic effects are to be expected. Only 1,3-Butadiene is considered to be carcinogenic at a concentration of > 0.1%. All other ingredients are not mentioned as carcinogenic in the lists of ACGIH, NIOSH, IARC or TRGS 905.
<i>Reproductive toxicity:</i>	No toxic effects on reproduction are known.

### *Toxic effects after repeated exposure (subacute to chronic toxicity):*

Toxic effects are only expected after repeated exposure to very high concentrations. Persons working in bottling liquid gases suffered from symptoms of the airways (dry cough, dry throat), restlessness and dizziness. Daily inhalative exposure of volunteers to 500 ppm for 8 h carried out on 5 days/week for 2 weeks did not lead to clinical symptoms.

*Practical experience:* See above.

## 11.2 Toxicological information on the pure ingredients:

### 11.2.1 Isobutane, n-Butane, Propane

The toxicology of each of these substances is almost the same as of the gas-mixture (product).

### 11.2.2 1,3-Butadiene (may be an impurity lower than 0.1%)

#### *Toxicokinetics, metabolism and distribution:*

Resorption in the body is low, but differs from one human to another. The metabolism is complicated. The elimination of 1,3-Butadiene and its metabolites takes place mainly with the urine or the exhaled air and a very small part is excreted with the faeces.

#### *Acute toxicity:*

LD <sub>50</sub> (rat, oral):	5480 mg/kg (GESTIS).
LC <sub>50</sub> (rat, inhalation):	285 mg/l/4 h (GESTIS).

<i>After inhalation:</i>	At high concentrations weak irritation to the respiratory tract, neurotropic effect (depression of the CNS).
<i>After eye and skin contact:</i>	Cold damage to the eyes and skin following contact with the liquefied or expanding gas. Slight or no irritation.
<i>After ingestion:</i>	Exceptionally low acute toxicity (Refer to LD <sub>50</sub> -value).
<i>Chronic toxicity:</i>	Carcinogenic effect to the lympho-hemopoietic system (induction of leukemia).



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*Sensitization:* No sensitizing effects were found.  
*Mutagenicity:* 1,3-Butadiene and its metabolites have been proven to be genotoxic to somatic and germ cells in tests on mice and rats. The results of studies on persons occupationally exposed were contradictory.  
*Reproductive toxicity:* Experiments show no evidence for reproductive toxicity.  
*Cancer:* A carcinogenic effect on humans has been demonstrated.

### 11.2.3 All other ingredients

The toxicities of the remaining ingredients (steel, rubber) are negligible.

## SECTION 12: Ecological Information

### 12.1 Product:

The product as delivered causes no environmental hazards in normal use. Only very large amounts released to the atmosphere will contribute to climate change.

*Ecotoxic effects:* Not biodegradable, because hardly soluble in water. Degradable by sunlight. As natural substances no ecotoxic effects are to be expected for small quantities.

*Ecotoxic data:* There are no experimental animal data.

*WGK (Water Pollution Category, Germany):* Not hazardous to waters (AwSV).

### 12.2 Information on the **pure ingredients:**

#### 12.2.1 Isobutane, n-Butane, Propane

The ecotoxic effects of these pure ingredients are the same as for the product.

*WGK (Water Pollution Category, Germany):* Not hazardous to waters (all gases, AwSV)

*Identification numbers (BAnz. AT):*

Isobutane: 562

n-Butane: 561

Propane: 560

#### 12.2.2 1,3-Butadiene (may be an impurity lower than 0.1%):

*Ecotoxic effects:* Biodegradable. Causes cancer to some mammals.

*Ecotoxic data:* There are no experimental animal data.

*WGK (Water Pollution Category, Germany):* 3 (severe hazard to waters) (BAnz. AT).  
Identification no.: 218.

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## 12.2.3 All other components of the product (Steel, rubber):

*Ecotoxic effects:* Not biodegradable.

*WGK (Water Pollution Category, Germany):* Not hazardous to waters (BAnz. AT, AwSV).

## SECTION 13: Disposal Considerations

**13.1 Product:** The gases cannot be disposed.  
 Emptied cartridges should be left outdoors with open valve underneath (gases are heavier than air) for a few hours to empty rest of gases before disposal as material made of metal.  
 Cartridges not used should be turned back to the supplier.  
 The disposal of the cartridges containing the gases under pressure has to be supervised (\*).

*Waste code:* 16 05 04\*  
*Waste name:* Gases in pressure containers (including halons) containing dangerous substances

### 13.3 Packing materials:

Packing materials made of metal:

*Waste code:* 15 01 04  
*Waste name:* Packing materials made of metal

Waste codes numbers and names in accordance with the European Waste Register Ordinance.

## SECTION 14: Transport Information

### 14.1 Transportation by land ADR/RID

UN No.: 2037  
 UN proper technical name: UN 2037, Receptacles, small, containing gas (gas cartridges)  
 Class: 2  
 Classification code: 5F



Danger Label: 2.1 Flammable Gases  
 Carriage Document: UN 2037, RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES), 2.1  
 Tunnel Category: (D) Passage forbidden through tunnels of category D and E  
 Packaging Group: Not applicable.  
 Special instructions: 191, 303, 327, 344  
 Limited Quantity LQ: 1 L  
 Exempted Quantities: E0 (Not permitted as Exempted Quantity)  
 Transport Category: 2  
 Packing Instructions: P003, LP200; SV PP17, PP96 RR6, L2  
 Package: MP9



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## 14.2 Shipping by sea IMDG Sea:

UN No.:	2037
Proper shipping name:	UN 2037 Receptacles, small, containing gas (gas cartridges)
Class:	2
Additional hazard label:	Not applicable
Marine Pollutant:	No
Hazard Label (for packages):	2.1 Flammable Gases
Carriage Document:	UN 2037, RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES), 2.1
Packaging Group:	Not applicable
Special Instructions:	SI 191, 277, 303, 327, 344, 959
Limited Quantity:	1000 mL, SI 277
Exempted Quantities:	E0 (Not permitted as Exempted Quantity)
Packing Instructions:	LP200, SV PP96 L2, PI: P003, PP17
EMS:	F-D,S-U
Handling:	Category B. SW2, SW22, Clear of living quarters.

## 14.3 Shipping by air ICAO-TI und IATA-DGR 64 edition of 1 January, 2023:

UN/ID No.:	2037
IATA proper shipping name:	Receptacles, small, containing gas (gas cartridges), mixture
Class:	2 Gases
Additional hazard label::	Not applicable
Hazard Label:	2.1 Flammable Gases
Special Instructions:	A145, A167, A802
Packaging group:	Not applicable
Limited Quantity:	1 kg (Passenger); 15 kg (Cargo)
Exempted Quantities:	E0
Packing Instruction Passenger:	Y203
Packing Instruction Cargo:	203

## SECTION 15: Regulatory Information

Directive 1907/2006/EC of 18 Dec. 2006, last revision of 17 July, 2023.

Ordinance (EC) No. 1272/2008 (GHS) of 16 Dec., 2008; last revision of 11 July, 2023.

15.1.1 There are no safety reports according to 1907/2006/EC (REACH) available.

15.1.2 *Substances of very high concern (SVHC):*

This product does not contain substances of very high concern according to Directive 1907/2006/EC, article 57a - 57f or annex XIV and XVII.

15.1.3 *Directive No. 850/2004/EC on (very) persistent organic pollutants and amending directive 79/117/EEC or directive 1907/2006/EC, article 57d + e or annex XIII:*

None of the ingredients are regulated.

15.1.4 *Directive No. 1005/2009/EC on substances that deplete the ozone layer*

None of the ingredients are regulated (Last supplementation: Directive No. 2020/2181/EC of 31 Dec. 2020)

All other relevant regulations are mentioned elsewhere in this Safety Data Sheet.



# SAFETY DATA SHEET

Reimo Reisemobil-Center GmbH

Safety Data Sheet according to Directive 1907/2006/EC, Article 31, Annex II, and TRGS 220 (Germany)

Product name: **BUTAN / PROPAN GASKARTUSCHE 450; GAS CARTRIDGE 450**

Date of issue: 4 Aug., 2023

Date of last revision:

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15.2 *Classification and Labelling:* Refer to SECTION 2

15.3 *National Regulations, Germany:*

15.3.1 *StörfallV:* P2 Flammable gases, Category 1 or 2: Annex I, No. 2.1.: lower threshold: 50 t; upper threshold: 200 t

15.3.2 *TA-Luft:* Clause 5.2.5 Organic Substances: max. mass concentration: 50 mg/m<sup>3</sup> or max. mass flow: 0,50 kg/h (measured as total carbon).

15.3.3 *German VCI Storage Class:* 2 A (Gases, TRGS 510)

15.3.4 *AwSV:* WGK (Water Pollution Category, Germany): not hazardous to waters (Refer also to SECTION 12.2.1)

15.3.5 *Volatile components:* VOC: 100%

15.4 *Further regulations and restrictions:* Occupational restrictions: Take note of Directive 94/33/EC on the protection of young people at work.

## SECTION 16: Other Information

### *Abbreviations:*

ACGIH: American Conference of Governmental Industrial Hygienists

AwSV: Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen vom 18 April 2017 (ordinance about facilities for handling with substances hazardous to water of 18 April 2017)

BAnz. AT: Liste der wassergefährdenden Stoffe, veröffentlicht im Bundesanzeiger AT vom 10.08.2017 (list of substances hazardous to water, published by Bundesanzeiger AT of 8 Aug. 2017, last update of 14 July, 2023)

BOD: Biochemical oxygen demand

CAS No.: Number of the Chemical Abstract System

ChemIDplus: Database of the United States National Library of Medicine

COD: Chemical oxygen demand

DFG: Deutsche Forschungsgemeinschaft (German Society for Research)

GMBI: Gemeinsames Ministerialblatt: Publication of all ministries of the Federal Republic of Germany  
Webb: gmbi-online.de

DNEL Derived No-Effect Level

DIN; DIN/ISO: German standard

DOC: Dissolved organic carbon

EC<sub>50</sub>: Effektive dosis (50% of the tested animals have symptoms)

EN: European standard

EINECS: European Inventory of Existing Commercial Substances

GESTIS: Data base of Berufsgenossenschaftliches Institut für Arbeitsschutz, Germany

GMBI: Gemeinsames Ministerialblatt: Publication of all ministries of the Federal Republic of Germany  
Webb: gmbi-online.de

IARC: International Agency for Research on Cancer (World Health Organisation)

IRT: Inhalation risk test

IUCLID: International Uniform Chemical Information Database

LC<sub>50</sub>: Lethal Concentration for 50% of the tested animals

LD<sub>50</sub>: Lethal Dose for 50% of the tested animals

LOEC: Lowest Observed Effect Concentration

MAK: Maximale Arbeitsplatzkonzentration (maximum concentration in the workplace, out of date)

MSDS: Material Safety Data Sheet

NIOSH: National Institute for Occupational Safety and Health (USA)



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NOAEL: No Observed Adverse Effect Level  
NOEC: No Observed Effect Concentration  
NOEL: No Observed Effect Level  
OECD: Organisation for Economic Co-operation and Development  
OSHA: Occupational Safety and Health Administration (USA)  
PNEC: Predicted No-Effect Concentration  
RTECS: Register of Toxic Effects of Chemical Substances  
StörfallV: Störfallverordnung (Hazardous Incident Ordinance)  
TG: Test-Guideline  
TOC: Total organic carbon  
TOD: Theoretical oxygen demand  
TRGS: Technische Regel für Gefahrstoffe (Technical rules for hazardous substances, Germany)  
TRK: Technische Richtkonzentration (technical concentration in the workplace to comply with [for cancerogenic substances], out of date)  
VCI: Verband der Chemischen Industrie e.V. (Chemical Industry Association, Germany)  
VOC: Volatile organic carbons  
WGK: Wassergefährdungsklasse (German Water Hazard Class, Germany, refer to AwSV)

As of the date of issuance, we are providing available information relevant to the handling of this material in the workplace. All information contained herein is offered in good faith in the belief that it is accurate. This material safety data sheet shall not be deemed to constitute or imply any warranty of any kind. In the event of an adverse incident associated with this material, this safety data sheet is not intended as a substitute for consultation with appropriately trained personnel (refer to SECTION 1). Nor is this safety data sheet intended to be a substitute for any product literature which may accompany the finished product.