## Silico H1 500ml

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

### 1.1. Product identifier

**Trade name/designation:**

Silico H1 500ml

**Article No.:**
T201100

**UFI:**
HKWM-U26U-JT0W-FJDN

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

**Use of the substance/mixture:**
Lubricating agent

### 1.3. Details of the supplier of the safety data sheet

**Supplier:**


**KANDO Service GmbH**
Hartleitnerstraße 3
4653 Eberstalzell
Austria
**Telephone:** +43 (0) 7241 213 79
**Email:** msds@kando.eu


### 1.4. Emergency telephone number

Vergiftungsinformationszentrale (VIZ), Stubenring 6, 1010 Wien, 24h: 01 406 43 43, Montag - Freitag: 8 bis 16 Uhr, Tel.: 01 406 68 98 (keine medizinische Auskunft) (Only available during office hours.)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

| Hazard classes and hazard categories | Hazard statements | Classification procedure |
|---|---|---|
| aerosol dispensers and lighters *(Aerosol 1)* | H222; H229: Extremely flammable aerosol. Pressurised container: May burst if heated. | |
| STOT-single exposure *(STOT SE 3)* | H336: May cause drowsiness or dizziness. | |
| Hazardous to the aquatic environment *(Aquatic Chronic 3)* | H412: Harmful to aquatic life with long lasting effects. | |

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### 2.2. Label elements

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

**Hazard pictograms:**



**GHS02**
Flame



**GHS07**
Exclamation mark

**Signal word:** Danger

**Hazard components for labelling:**
pentane

| Hazard statements for physical hazards | |
|---|---|
| H222 | Extremely flammable aerosol. |
| H229 | Pressurised container: May burst if heated. |

| Hazard statements for health hazards | |
|---|---|
| H336 | May cause drowsiness or dizziness. |

| Hazard statements for environmental hazards | |
|---|---|
| H412 | Harmful to aquatic life with long lasting effects. |

| Supplemental hazard information | |
|---|---|
| EUH066 | Repeated exposure may cause skin dryness or cracking. |

| Precautionary statements Prevention | |
|---|---|
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P211 | Do not spray on an open flame or other ignition source. |
| P251 | Do not pierce or burn, even after use. |
| P260 | Do not breathe mist/vapours/spray. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P273 | Avoid release to the environment. |
| P280 | Wear protective gloves/protective clothing and eye protection/face protection. |

| Precautionary statements Response | |
|---|---|
| P304 + P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| P312 | Call a POISON CENTER if you feel unwell. |

| Precautionary statements Storage | |
|---|---|
| P403 | Store in a well-ventilated place. |
| P410 + P412 | Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F. |

| Precautionary statements Disposal | |
|---|---|
| P501 | Dispose of contents/container to an appropriate recycling or disposal facility. |

**Additional information:**
Formation of explosive mixtures possible without adequate ventilation.

### 2.3. Other hazards

**Other adverse effects:**
The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

**Description:**
Active ingredient mixture with propellant gas

**Additional information:**
Aerosols and containers fitted with a solid nebuliser containing substances or mixtures classified as hazardous by aspiration must not be labelled for this hazard.

**Hazardous ingredients / Hazardous impurities / Stabilisers:**

| Product identifiers | Substance name<br>Classification according to Regulation (EC) No 1272/2008 [CLP] | Concentration |
|---|---|---|
| CAS No.: 106-97-8<br>EC No.: 203-448-7<br>Index No.: 601-004-00-0<br>REACH No.:<br>01-2119474691-32 | **Butane (with < 0,1 % butadiene (203-450-8))**<br>Flam. Gas 1A (H220), Press. Gas (Comp.) (H280)<br> Danger<br>**Acute Toxicity Estimate**<br>ATE (inhalation, gases) > 800,000 ppmV<br>ATE (inhalation, vapour) 658 mg/L | 50 – < 75<br>% |
| CAS No.: 74-98-6<br>EC No.: 200-827-9<br>Index No.: 601-003-00-5<br>REACH No.:<br>01-2119486944-21 | **propane**<br>Flam. Gas 1A (H220), Press. Gas (Comp.) (H280)<br> Danger<br>**Acute Toxicity Estimate**<br>ATE (oral) 5,840 mg/kg<br>ATE (dermal) 13,900 mg/kg<br>ATE (inhalation, gases) > 25 ppmV<br>ATE (inhalation, vapour) ≥ 50 mg/L | 10 – < 25<br>% |
| CAS No.: 109-66-0<br>EC No.: 203-692-4<br>Index No.: 601-006-00-1<br>REACH No.:<br>01-2119459286-30 | **pentane**<br>Aquatic Chronic 2 (H411), Asp. Tox. 1 (H304), Flam. Liq. 2 (H225), STOT SE 3 (H336)<br> Danger EUH066<br>**Acute Toxicity Estimate**<br>ATE (oral) > 5,000 mg/kg<br>ATE (dermal) > 2,000 mg/kg<br>ATE (inhalation, gases) > 20 ppmV<br>ATE (inhalation, vapour) > 25.3 mg/L<br>**Additional information:** EUH066 | 2.5 – < 10<br>% |
| CAS No.: 75-28-5<br>EC No.: 200-857-2<br>REACH No.:<br>01-2119485395-27 | **Isobutane**<br>Flam. Gas 1A (H220), Press. Gas (Comp.) (H280)<br> Danger<br>**Acute Toxicity Estimate**<br>ATE (inhalation, vapour) 1,237 mg/L | 2.5 – < 10<br>% |

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

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

**Following inhalation:**
Fresh air supply, consult a doctor in case of complaints.

**In case of skin contact:**
In general, the product is not irritating to skin.

**After eye contact:**
Rinse opened eye for several minutes under running water. Consult a doctor if symptoms persist

**Following ingestion:**
Do not induce vomiting, seek medical help immediately.

### 4.2. Most important symptoms and effects, both acute and delayed
No data available

### 4.3. Indication of any immediate medical attention and special treatment needed
No data available

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable extinguishing media:**
Water mist, Extinguishing powder, Carbon dioxide (CO2), alcohol resistant foam

**Unsuitable extinguishing media:**
Water in full jet

### 5.2. Special hazards arising from the substance or mixture
No further relevant information available.

### 5.3. Advice for firefighters
Special protective equipment: Put on breathing apparatus.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

### 6.1.1. For non-emergency personnel
**Personal precautions:**
Wear protective equipment. Keep unprotected persons away.

### 6.1.2. For emergency responders
No data available

### 6.2. Environmental precautions
Do not allow to enter into surface water or drains. In case of spillage into water or sewage system, inform the competent authorities.

### 6.3. Methods and material for containment and cleaning up
**For cleaning up:**
Do not wash away with water or aqueous detergents.
**Other information:**
Provide adequate ventilation.

### 6.4. Reference to other sections
See section 7 for further information on safe handling.
For further information on personal protective equipment: see section 8.
For further information on disposal: see section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

### Protective measures
**Advices on safe handling:**
Ensure good ventilation/extraction at the workplace.
**Fire prevent measures:**
Do not spray on naked flames or any incandescent material. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. Container is under pressure. Protect from sunlight and temperatures above 50°C (e.g. from incandescent lamps). Do not open by force or burn even after use.

### 7.2. Conditions for safe storage, including any incompatibilities
**Requirements for storage rooms and vessels:**
Store in a cool place. The official regulations for the storage of pressurised gas packages must be observed.
**Hints on storage assembly:**
The official regulations for the storage of pressurised gas packages must be observed.
**Storage class (TRGS 510, Germany):** 2B – Aerosol dispensers and lighters
**Further information on storage conditions:**
Store in a cool, dry place in well-sealed containers. Protect from heat and direct sunlight.

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### 7.3. Specific end use(s)
No data available

## SECTION 8: Exposure controls/personal protection

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### 8.1. Control parameters

#### 8.1.1. Occupational exposure limit values

| Limit value type (country of origin) | Substance name | ① Long-term occupational exposure limit value<br>② Short-term occupational exposure limit value<br>③ Instantaneous value<br>④ Monitoring and observation processes<br>⑤ Remark |
|---|---|---|
| MAK (AT) | **Butane (with < 0,1 % butadiene (203-450-8))**<br>CAS No.: 106-97-8<br>EC No.: 203-448-7 | ① 800 ppm (1,900 mg/m³) |
| MAK (AT) | **Butane (with < 0,1 % butadiene (203-450-8))**<br>CAS No.: 106-97-8<br>EC No.: 203-448-7 | ② 1,600 ppm (3,800 mg/m³)<br>⑤ (max. 3x60 min./Schicht, Momentanwert) 60(Mow); 3x |
| MAK (AT) | **propane**<br>CAS No.: 74-98-6<br>EC No.: 200-827-9 | ② 2,000 ppm (3,600 mg/m³)<br>⑤ (max. 3x60 min./Schicht, Momentanwert) 60(Mow); 3x |
| MAK (AT) | **propane**<br>CAS No.: 74-98-6<br>EC No.: 200-827-9 | ① 1,000 ppm (1,800 mg/m³) |
| IOELV (EU) | **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | ① 1,000 ppm (3,000 mg/m³) |
| MAK (AT)<br>from 1 Jan 2026 | **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | ② 1,200 ppm (3,600 mg/m³)<br>⑤ (max. 3x60 min./Schicht, Momentanwert) 60(Mow); 3x |
| MAK (AT)<br>from 1 Jan 2026 | **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | ① 600 ppm (1,800 mg/m³) |
| MAK (AT) | **Isobutane**<br>CAS No.: 75-28-5<br>EC No.: 200-857-2 | ② 1,600 ppm (3,800 mg/m³)<br>⑤ (max. 3x60 min./SchichtMomentanwert) 60(Mow); 3x |
| MAK (AT) | **Isobutane**<br>CAS No.: 75-28-5<br>EC No.: 200-857-2 | ① 800 ppm (1,900 mg/m³) |

#### 8.1.2. Biological limit values

No data available

#### 8.1.3. DNEL-/PNEC-values

| Substance name | DNEL value | ① DNEL type<br>② Exposure route |
|---|---|---|
| **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | 3,000 mg/m³ | ① DNEL worker<br>② Long-term – inhalation, systemic effects |
| **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | 643 mg/m³ | ① DNEL Consumer<br>② Long-term – inhalation, systemic effects |
| **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | 432 mg/kg bw/day | ① DNEL worker<br>② Long-term - dermal, systemic effects |
| **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | 214 mg/kg bw/day | ① DNEL Consumer<br>② Long-term - dermal, systemic effects |

| Substance name | DNEL value | ① DNEL type<br>② Exposure route |
|---|---|---|
| **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | 214 mg/kg bw/day | ① DNEL Consumer<br>② Long-term - oral, systemic effects |

| Substance name | PNEC Value | ① PNEC type |
|---|---|---|
| **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | 0.23 mg/L | ① PNEC aquatic, freshwater |
| **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | 0.23 mg/L | ① PNEC aquatic, marine water |
| **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | 3.6 mg/L | ① PNEC sewage treatment plant |
| **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | 1.2 mg/kg bw/day | ① PNEC sediment, freshwater |
| **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | 1.2 mg/kg | ① PNEC sediment, marine water |
| **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | 0.55 mg/kg | ① PNEC soil |
| **pentane**<br>CAS No.: 109-66-0<br>EC No.: 203-692-4 | 0.88 mg/L | ① PNEC aquatic, intermittent release |

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

No further details. See section 7.

#### 8.2.2. Personal protection equipment



**Eye/face protection:**

Safety goggles (EN-166)

**Skin protection:**

Hand protection:
Wear gloves for protection against chemicals according to EN 374.
Gloves / solvent resistant
Selection of glove material considering breakthrough times, permeation rates and degradation.
Glove material:
The selection of a suitable glove depends not only on the material but also on other quality features and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of glove materials cannot be calculated in advance and must therefore be checked before use.
NBR (Nitrile rubber)
Recommended material thickness: ≥ 0,5 mm
Permeation time (maximum wear duration):
For continuous contact we recommend gloves with a breakthrough time of at least 240 minutes, with the preference for a breakthrough time greater than 480 minutes. For short term or splash protection we recommend the same. We are aware that suitable gloves offering this protection are not available. In this case, a shorter breakthrough time is permissible, provided the procedures for maintenance and timely replacement are followed. The thickness of the gloves is not a good measure of the resistance the gloves give against a chemical substance, as this depends on the exact composition of the material of the gloves. The exact breakthrough time should be checked with the glove manufacturer and adhered to.

Body protection:
Use protective suit. (EN-13034/6)
It is recommended to wear antistatic, chemical and oil-resistant clothing and safety shoes that completely cover the skin. (EN1149; EN340&EN ISO 13688; EN13034-6).

**Respiratory protection:**
In case of inadequate ventilation wear respiratory protection. Filter A2/P2

**Other protection measures:**
General protective and hygienic measures: Keep away from food, drink and animal feed. Wash hands before breaks and after work. Do not inhale gases/vapours/aerosols. General ventilation.

### 8.2.3. Environmental exposure controls
Use a suitable container to prevent environmental pollution.

## SECTION 9: Physical and chemical properties

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

**Appearance**

**Form:** Aerosol
**Colour:** According to product designation
**Odour:** characteristic
**flammability:** No data available

**Safety relevant basis data**

| Parameter | Value | at °C | ① Method<br>② Remark |
|---|---|---|---|
| pH | *not applicable* | | ② Mixture is not polar/aprotic. |
| Initial boiling point and boiling range | -44.5 °C | | |
| Flash point | -97 °C | | |
| Evaporation rate | *No data available* | | |
| Auto-ignition temperature | 285 °C | | |
| Upper/lower flammability or explosive limits | 1.4 – 10.9 Vol-% | | |
| Vapour pressure | 3,500 hPa | 20 °C | ② 3,0 Bar; <8000 hPa (50°C) |
| Density | 0.585 g/cm³ | 20 °C | |
| Water solubility | Immiscible | | |

* 
### 9.2. Other information
The product is not self-igniting. The product is not explosive, but the formation of explosive vapour/air mixtures is possible. formation of explosive vapour/air mixtures is possible.
Organic solvents: 91,0 %
Solid content: 0,0 %

### 9.2.1. Information with regard to physical hazard classes
**Aerosols:**
Extremely flammable aerosol. Pressurized container: May burst if heated.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity
No further relevant information available.

### 10.2. Chemical stability
Thermal decomposition / Conditions to avoid: No decomposition when used as directed.

### 10.3. Possibility of hazardous reactions
No dangerous reactions known.

### 10.4. Conditions to avoid
No further relevant information available.

### 10.5. Incompatible materials
No further relevant information available.

### 10.6. Hazardous decomposition products
No dangerous decomposition products known.

## SECTION 11: Toxicological information

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

| |
|---|
| **Butane (with < 0,1 % butadiene (203-450-8))** CAS No.: 106-97-8 EC No.: 203-448-7 |
| **$LC_{50}$ Acute inhalation toxicity (gas):** >800,000 ppmV (Rat) |
| **$LC_{50}$ Acute inhalation toxicity (vapour):** 658 mg/L 4 h (Rat) |
| **propane** CAS No.: 74-98-6 EC No.: 200-827-9 |
| **$LD_{50}$ oral:** 5,840 mg/kg (Rat) |
| **$LD_{50}$ dermal:** 13,900 mg/kg (Rabbit) |
| **$LC_{50}$ Acute inhalation toxicity (gas):** >25 ppmV 4 h (Rat) |
| **$LC_{50}$ Acute inhalation toxicity (vapour):** ≥50 mg/L 4 h (Rat) |
| **pentane** CAS No.: 109-66-0 EC No.: 203-692-4 |
| **$LD_{50}$ oral:** >5,000 mg/kg (Rat) |
| **$LD_{50}$ dermal:** >2,000 mg/kg (Rat) |
| **$LC_{50}$ Acute inhalation toxicity (gas):** >20 ppmV 4 h (rat) |
| **$LC_{50}$ Acute inhalation toxicity (vapour):** >25.3 mg/L 4 h (Rat) OECD 403 |
| **Isobutane** CAS No.: 75-28-5 EC No.: 200-857-2 |
| **$LC_{50}$ Acute inhalation toxicity (vapour):** 1,237 mg/L (Mouse) |

**Acute oral toxicity:**
Based on available data, the classification criteria are not met.

**Acute dermal toxicity:**
Based on available data, the classification criteria are not met.

**Acute inhalation toxicity:**
Based on available data, the classification criteria are not met.

**Skin corrosion/irritation:**
Based on available data, the classification criteria are not met.

**Serious eye damage/irritation:**
Based on available data, the classification criteria are not met.

**Respiratory or skin sensitisation:**
Based on available data, the classification criteria are not met.

**Germ cell mutagenicity:**
Based on available data, the classification criteria are not met.

**Carcinogenicity:**
Based on available data, the classification criteria are not met.

**Reproductive toxicity:**
Based on available data, the classification criteria are not met.

**STOT-single exposure:**
May cause drowsiness or dizziness.

**STOT-repeated exposure:**
Based on available data, the classification criteria are not met.

**Aspiration hazard:**
Based on available data, the classification criteria are not met.

### 11.2. Information on other hazards
**Endocrine disrupting properties:**
None of the ingredients are included.

## SECTION 12: Ecological information

### * 12.1. Toxicity

| **Butane (with < 0,1 % butadiene (203-450-8))** CAS No.: 106-97-8 EC No.: 203-448-7 |
|---|
| **$LC_{50}$:** 24.11 mg/L 4 d (fish) QSAR |
| **$LC_{50}$:** 14.22 mg/L 2 d (crustaceans) QSAR |
| **$LC_{50}$:** 24 mg/L 4 d (Pisces (generic)) ECOSAR QSAR |
| **$EC_{50}$:** 7.7 mg/L 4 d (Algae (generic)) ECOSAR v1.00 QSAR |
| **propane** CAS No.: 74-98-6 EC No.: 200-827-9 |
| **$LC_{50}$:** 9,640 mg/L 4 d (fish, Pimephales promelas) |
| **$LC_{50}$:** 0.41 mg/L 4 d (fish, Oncorhynchus mykiss) |
| **$LC_{50}$:** 49.9 mg/L 4 d (fish) |
| **$EC_{50}$:** >100 mg/L (Algae/water plant, Bacteria) |
| **$EC_{50}$:** 0.17 mg/L 3 d (Algae/water plant, Selenastrum capricornutum) |
| **$EC_{50}$:** 69.43 mg/L 2 d (crustaceans, Daphnia) Calculation with the ECOSAR programme v1.00. |
| **NOEC:** 0.017 mg/L 3 d (Algae/water plant, Pseudokirchneriella subcapitata) |
| **$ErC_{50}$:** 19.37 mg/L 4 d (Algae/water plant, Algae) Calculation with the ECOSAR programme v1.00. |
| **LOEC:** 1,000 mg/L (Algae/water plant, Algae) |
| **LOEC:** 1,000 mg/L (Algae/water plant, Alge) |
| **$IC_{50}$:** 11.3 mg/L 3 d (Algae/water plant) |
| **LOEC:** 1,000 mg/L |
| **pentane** CAS No.: 109-66-0 EC No.: 203-692-4 |
| **$LC_{50}$:** 4.26 mg/L 4 d (fish, Oncorhynchus mykiss) |
| **$EC_{50}$:** 10.7 mg/L 3 d (Algae/water plant, Pseudokirchneriella subcapitata) |
| **$EC_{50}$:** 2.7 mg/L 2 d (crustaceans, Daphnia magna) |
| **NOEC:** 7.51 mg/L 3 d (Algae/water plant, Pseudokirchneriella subcapitata) |
| **NOEC:** 7.51 mg/L 3 d (Algae/water plant, Pseudokirchneriella subcapitata) |
| **$EC_{50}$:** 10.7 mg/L 3 d (Algae/water plant, Pseudokirchnerie lla subcapitata) |
| **NOEC:** 7.51 mg/L 3 d (Pseudokirchneriella subcapitata) |
| **$LC_{50}$:** 4.26 mg/L 4 d (Oncorhynchus mykiss) |
| **$LC_{50}$:** 4.26 mg/L 4 d (fish) |
| **Isobutane** CAS No.: 75-28-5 EC No.: 200-857-2 |
| **$LC_{50}$:** 91.42 mg/L 4 d (fish) |
| **$EC_{50}$:** 69.43 mg/L 2 d (crustaceans, Daphnia sp.) |
| **$ErC_{50}$:** 19.37 mg/L 4 d (Algae/water plant) |

### * 12.2. Persistence and degradability

| **Butane (with < 0,1 % butadiene (203-450-8))** CAS No.: 106-97-8 EC No.: 203-448-7 |
|---|
| **Biodegradation:** Yes, rapidly |
| **propane** CAS No.: 74-98-6 EC No.: 200-827-9 |
| **Biodegradation:** Yes, rapidly |
| **pentane** CAS No.: 109-66-0 EC No.: 203-692-4 |
| **Biodegradation:** Yes, rapidly |

**Biodegradation:**
Not readily biodegradable.

### * 12.3. Bioaccumulative potential

| **Butane (with < 0,1 % butadiene (203-450-8))** CAS No.: 106-97-8 EC No.: 203-448-7 |
|---|
| **Log $K_{OW}$:** 2.89 |

| | |
|---|---|
| **propane** | CAS No.: 74-98-6 EC No.: 200-827-9 |
| **Log $K_{OW}$:** | 1.09 |
| **pentane** | CAS No.: 109-66-0 EC No.: 203-692-4 |
| **Log $K_{OW}$:** | 3.39 |
| **Isobutane** | CAS No.: 75-28-5 EC No.: 200-857-2 |
| **Log $K_{OW}$:** | 1.09 |

* **12.4. Mobility in soil**

No data available

**12.5. Results of PBT and vPvB assessment**

| | |
|---|---|
| **Butane (with < 0,1 % butadiene (203-450-8))** | CAS No.: 106-97-8 EC No.: 203-448-7 |
| **Results of PBT and vPvB assessment:** | — |
| **propane** | CAS No.: 74-98-6 EC No.: 200-827-9 |
| **Results of PBT and vPvB assessment:** | — |
| **pentane** | CAS No.: 109-66-0 EC No.: 203-692-4 |
| **Results of PBT and vPvB assessment:** | — |
| **Isobutane** | CAS No.: 75-28-5 EC No.: 200-857-2 |
| **Results of PBT and vPvB assessment:** | — |

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

**12.6. Endocrine disrupting properties**

The product does not contain any substances with endocrine-disrupting properties.

* **12.7. Other adverse effects**

water hazard class 2: obviously hazardous to water, VOC value: 532,2 g/l (EU)
Harmful to fish. Do not allow to enter into surface water or drains. Drinking water hazard even when small quantities leak into the subsoil. Harmful to aquatic life.

## SECTION 13: Disposal considerations

**13.1. Waste treatment methods**

Must not be disposed of together with household waste. Do not allow to enter into surface water or drains.

**13.1.1. Product/Packaging disposal**

**Waste codes/waste designations according to EWC/AVV**

**Directive 2008/98/EC (Waste Framework Directive)**

| | |
|---|---|
| HP 3 | Flammable |
| HP 14 | Ecotoxic |

**Waste treatment options**

**Appropriate disposal / Package:**

Uncleaned packaging: Dispose of waste according to applicable legislation.

## SECTION 14: Transport information

| Land transport (ADR/RID) | Inland waterway craft (ADN) | Sea transport (IMDG) | Air transport (ICAO-TI / IATA-DGR) |
|---|---|---|---|
| **14.1. UN number or ID number** | | | |
| 1950 | 1950 | 1950 | 1950 |
| **14.2. UN proper shipping name** | | | |
| AEROSOLS | AEROSOLS | AEROSOLS | AEROSOLS, flammable |
| **14.3. Transport hazard class(es)** | | | |
|  2.1 |  2.1 |  2.1 |  2.1 |

| Land transport (ADR/RID) | Inland waterway craft (ADN) | Sea transport (IMDG) | Air transport (ICAO-TI / IATA-DGR) |
|---|---|---|---|
| **14.4. Packing group** | | | |
| | | - | |
| **14.5. Environmental hazards** | | | |
| No | No | No | No |
| * **14.6. Special precautions for user** | | | |
| **Limited quantity (LQ):** 1 L<br>**Excepted Quantities (EQ):** E0<br>**Classification code:** 5F<br>**Tunnel restriction code:** (D)<br>**Remark:** Attention: Gases Transport category 2 | **Limited quantity (LQ):** 1 L<br>**Excepted Quantities (EQ):** E0<br>**Classification code:** 5F<br>**Remark:** Attention: Gases | **Limited quantity (LQ):** Siehe SV277<br>**Excepted Quantities (EQ):** E0<br>**EmS-No.:** F-D, S-U<br>**Remark:** Attention: Gases Stowage Code: SW1 Protected from sources of heat. SW22 For AEROSOLS with a maximum capacity of 1 litre: Category A. For AEROSOLS with a capacity above 1 litre: Category B. For WASTE AEROSOLS: Category C, Clear of living quarters. Segregation Code: SG69 For AEROSOLS with a maximum capacity of 1 litre: Segregation as for class 9. Stow "separated from" class 1 except for division 1.4. For AEROSOLS with a capacity above 1 litre: Segregation as for the appropriate subdivision of class 2. For WASTE AEROSOLS: Segregation as for the appropriate subdivision of class 2. | **Limited quantity (LQ):** Y203<br>**Excepted Quantities (EQ):** E0<br>**Remark:** Attention: Gases On passenger aircraft/rail: 75kg On cargo aircraft only: 150kg |

### 14.7. Maritime transport in bulk according to IMO instruments
not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU legislation

**Authorisations:**
Directive 2012/18/EU
Named dangerous substances - ANNEX I: None of the ingredients are included.

**Restrictions on use:**
Quantity threshold (in tons) for use in lower class farms 150t
Quantity threshold (in tons) for use in upper-tier establishments 500t
Regulation (EC) No 1907/2006 ANNEX XVII: Restriction conditions: 3
Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment - Annex II: None of the ingredients are included.
Regulation (EU) 2019/1148

Annex I - RESTRICTED EXPORT SUBSTANCES FOR EXPLOSIVES (upper concentration limit for a permit pursuant to Article 5(3)): None of the ingredients are included.
Annex II - EXPLOSIVES REPORTABLE FOR EXPLOSIVES: None of the ingredients are included.
Regulation (EC) No 273/2004 on drug precursors: None of the ingredients are included.
Regulation (EC) No 111/2005 laying down rules for the monitoring of trade in drug precursors between the Community and third countries: None of the ingredients are included.

**Other regulations (EU):**

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive], Hazard categories:
• P3a 'Flammable' aerosols Category 1 or 2, containing flammable gases Category 1 or 2 or flammable liquids

Named dangerous substances:
• Liquefied flammable gases, Category 1 or 2 (including liquefied petroleum gas) and natural gas

**Directive 2004/42/EC on the limitation of emissions of volatile organic compounds:**

Volatile organic compound (VOC) content: 532.2 g/L

### 15.1.2. National regulations

No data available

### 15.2. Chemical Safety Assessment

A chemical safety assessment has not been carried out.

## SECTION 16: Other information

* 
### 16.1. Indication of changes

| | |
|---|---|
| 2.2. | Label elements |
| 7.3. | Specific end use(s) |
| 8.1. | Control parameters |
| 9.1. | Information on basic physical and chemical properties |
| 9.2. | Other information |
| 11.1. | Information on hazard classes as defined in Regulation (EC) No 1272/2008 |
| 12.1. | Toxicity |
| 12.2. | Persistence and degradability |
| 12.3. | Bioaccumulative potential |
| 12.4. | Mobility in soil |
| 12.7. | Other adverse effects |
| 14.6. | Special precautions for user |
| 15.1. | Safety, health and environmental regulations/legislation specific for the substance or mixture |
| 16.1. | Indication of changes |
| 16.2. | Abbreviations and acronyms |

* 
### 16.2. Abbreviations and acronyms

| | |
|---|---|
| AC | Article Category |
| ACGIH | American Conference of Governmental Industrial Hygienists |
| 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 |
| ATE | Acute Toxicity Estimate |
| AVV | Waste Shipment Ordinance (DE) |
| CAS | Chemical Abstracts Service |
| CLP | Classification, Labelling and Packaging |
| DNEL | derived no-effect level |
| EAK | European Waste Catalogue |
| $EC_{50}$ | Effective Concentration 50% |
| EG | European Community |
| EN | European Standard |
| ES | Exposure scenario |

| | |
|---|---|
| EU | European Union |
| EWC | European Waste Catalogue |
| $IC_{50}$ | Inhibition Concentration 50 % |
| ICAO | International Civil Aviation Organization |
| IMDG | International Maritime Dangerous Goods |
| IMO | International Maritime Organization |
| ISO | International Standards Organisation |
| KG | body weight |
| $LC_{50}$ | Lethal (fatal) Concentration 50% |
| $LD_{50}$ | Lethal (fatal) Dose 50% |
| MAK | Maximum concentration in the workplace air (CH) |
| NFPA | National Fire Protection Association |
| NIOSH | National Institute for Occupational Safety & Health |
| NOEC | No Observed Effect Concentration |
| OECD | Organisation for Economic Cooperation and Development |
| OSHA | Occupational Safety & Health Administration |
| PBT | persistent and bioaccumulative and toxic |
| PNEC | Predicted No Effect Concentration |
| QSAR | Quantitative Structure-Activity Relationship |
| REACH | Registration, Evaluation and Authorization of Chemicals |
| RID | Dangerous goods regulations for transport by rail |
| Tox. | Toxicity |
| TRGS | Technische Regeln für Gefahrstoffe |
| UFI | Unique Formula Identifier |
| UN | United Nations |
| VOC | Volatile organic compounds |
| ZNS | central nervous system |

### 16.3. Key literature references and sources for data
No data available

### 16.4. Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

| Hazard classes and hazard categories | Hazard statements | Classification procedure |
|---|---|---|
| aerosol dispensers and lighters *(Aerosol 1)* | H222; H229: Extremely flammable aerosol. Pressurised container: May burst if heated. | |
| STOT-single exposure *(STOT SE 3)* | H336: May cause drowsiness or dizziness. | |
| Hazardous to the aquatic environment *(Aquatic Chronic 3)* | H412: Harmful to aquatic life with long lasting effects. | |

### 16.5. List of relevant hazard statements and/or precautionary statements from sections 2 to 15

| Hazard statements | |
|---|---|
| H220 | Extremely flammable gas. |
| H225 | Highly flammable liquid and vapour. |
| H280 | Contains gas under pressure; may explode if heated. |
| H304 | May be fatal if swallowed and enters airways. |
| H336 | May cause drowsiness or dizziness. |
| H411 | Toxic to aquatic life with long lasting effects. |

| Supplemental hazard information | |
|---|---|
| EUH066 | Repeated exposure may cause skin dryness or cracking. |

### 16.6. Training advice
No data available

### 16.7. Additional information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-mentioned supplier nor its subsidiaries assume any liability with regard to the correctness or completeness of the information provided. A final determination of the suitability of individual materials is the sole responsibility of the user. All materials may involve unknown risks and should be used with caution. While certain risks are described herein, we cannot guarantee that these are the only possible risks.

* Data changed compared with the previous version.