

# Safety Data Sheet

acc. to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Printing date: October 16, 2018



Revision: October 16, 2018

## 1 Identification

- **Product identifier**
- **Trade name: Isobutane (Commercial Grade)**
- **Other means of identification:** 2-Methylpropane
- **Recommended use and restriction on use**
- **Recommended use:** Industrial uses.
- **Restrictions on use:** No relevant information available.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**  
Williams, Inc.  
One Williams Center  
Tulsa, OK 74172  
USA  
855-945-5762 (Toll-Free)  
ehs@williams.com
- **Emergency telephone number:**  
CHEMTREC  
1-800-424-9300 (US/Canada)  
+01 703-527-3887 (International)

## 2 Hazard(s) identification

- **Classification of the substance or mixture**

Flam. Gas 1	H220	Extremely flammable gas.
Press. Gas	H280	Contains gas under pressure; may explode if heated.
Simple Asphyxiant		May displace oxygen and cause rapid suffocation.
- **Label elements**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:**  
  
GHS02 GHS04
- **Signal word:** Danger
- **Hazard statements:**  
H220 Extremely flammable gas.  
H280 Contains gas under pressure; may explode if heated.  
May displace oxygen and cause rapid suffocation.
- **Precautionary statements:**  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
P381 Eliminate all ignition sources if safe to do so.  
P410+P403 Protect from sunlight. Store in a well-ventilated place.
- **Other hazards** There are no other hazards not otherwise classified that have been identified.

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## 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**

- **Components:**

75-28-5	isobutane	Flam. Gas 1, H220 Press. Gas, H280 Simple Asphyxiant	>95%
106-97-8	butane	Flam. Gas 1, H220 Press. Gas, H280 Simple Asphyxiant	<5%
74-98-6	Propane	Flam. Gas 1, H220 Press. Gas, H280 Simple Asphyxiant	<3%
75-08-1	ethyl mercaptan	Flam. Liq. 2, H225 Acute Tox. 4, H302; Acute Tox. 4, H332	<0.1%

- **Additional information:**

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.  
For the wording of the listed Hazard Statements, refer to section 16.

## 4 First-aid measures

- **Description of first aid measures**

- **After inhalation:**

Supply fresh air.

Provide oxygen treatment if affected person has difficulty breathing.

If experiencing respiratory symptoms: Call a poison center/doctor.

- **After skin contact:**

In cases of frostbite from liquefied gas or from high-pressure systems, rinse with plenty of water. Do not remove clothing.

- **After eye contact:**

Remove contact lenses if worn.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

- **After swallowing:** Unlikely route of exposure.

- **Most important symptoms and effects, both acute and delayed:**

Dizziness

Coughing

Frostbite from liquefied gas or high-pressure systems.

Disorientation

- **Danger:** May displace oxygen and cause rapid suffocation.

- **Indication of any immediate medical attention and special treatment needed:**

If necessary oxygen respiration treatment.

## 5 Fire-fighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:**

Foam

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Water fog / haze

Gaseous extinguishing agents

Carbon dioxide

- **For safety reasons unsuitable extinguishing agents:** Water stream.

- **Special hazards arising from the substance or mixture**

Danger of receptacles bursting because of high vapor pressure if heated.

Extremely flammable gas.

- **Advice for firefighters**

- **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

- **Additional information:**

Eliminate all ignition sources if safe to do so.

In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

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

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation.

Keep away from ignition sources.

Take precautionary measures against static discharge.

Use only non-sparking tools.

Protect from heat.

For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.

- **Environmental precautions** No special measures required.

- **Methods and material for containment and cleaning up** Allow to evaporate.

- **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

### 7 Handling and storage

- **Handling**

- **Precautions for safe handling:** Use enclosed means of conveyance.

- **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Ground/bond container and receiving equipment.

Emergency cooling must be available in case of nearby fire.

Flammable gas-air mixtures may be formed in empty containers/receptacles.

- **Conditions for safe storage, including any incompatibilities**

- **Requirements to be met by storerooms and receptacles:**

Avoid storage near extreme heat, ignition sources or open flame.

- **Information about storage in one common storage facility:** Store away from oxidizing agents.

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- **Further information about storage conditions:**  
Store in a cool place. Heat will increase pressure and may lead to the receptacle bursting.
- **Specific end use(s)** No relevant information available.

## 8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

**75-28-5 isobutane**

TLV (USA)	Short-term value: 2370 mg/m <sup>3</sup> , 1000 ppm (EX)
EL (Canada)	Short-term value: 1000 ppm EX
EV (Canada)	Long-term value: 800 ppm revoked as of 01/01/18
LMPE (Mexico)	Long-term value: 1000 ppm

**106-97-8 butane**

REL (USA)	Long-term value: 1900 mg/m <sup>3</sup> , 800 ppm
TLV (USA)	Short-term value: 2370 mg/m <sup>3</sup> , 1000 ppm (EX)
EL (Canada)	Short-term value: 1000 ppm EX
EV (Canada)	Long-term value: 800 ppm revoked as of 01/01/18
LMPE (Mexico)	Long-term value: 1000 ppm

**74-98-6 Propane**

PEL (USA)	Long-term value: 1800 mg/m <sup>3</sup> , 1000 ppm
REL (USA)	Long-term value: 1800 mg/m <sup>3</sup> , 1000 ppm
TLV (USA)	refer to Appendix F in TLVs&BEIs book; D, EX
EL (Canada)	Simple asphyxiant; EX
EV (Canada)	Long-term value: 1,000 ppm revoked as of 01/01/18
LMPE (Mexico)	Long-term value: 1000 ppm

**75-08-1 ethyl mercaptan**

PEL (USA)	Ceiling limit value: 25 mg/m <sup>3</sup> , 10 ppm
REL (USA)	Ceiling limit value: 1.3* mg/m <sup>3</sup> , 0.5* ppm *15 min
TLV (USA)	Long-term value: 1.3 mg/m <sup>3</sup> , 0.5 ppm
EL (Canada)	Long-term value: 0.5 ppm
EV (Canada)	Long-term value: 1.3 mg/m <sup>3</sup> , 0.5 ppm
LMPE (Mexico)	Long-term value: 0.5 ppm

- **Exposure controls**
- **General protective and hygienic measures:**

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The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

- **Engineering controls:** Provide adequate ventilation.

- **Breathing equipment:**

Not required under normal conditions of use.



Self-contained respiratory protective device should be used in case of large spills or leaks.

- **Protection of hands:**

Wear gloves for protection against thermal and mechanical hazards according to OSHA and NIOSH rules.

- **Eye protection:**



Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

- **Body protection:** Wear appropriate protective clothing.

- **Limitation and supervision of exposure into the environment**

No relevant information available.

- **Risk management measures** No relevant information available.

### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **Appearance:**

**Form:** Compressed liquefied gas

**Color:** Colorless

- **Odor:** Normally odorless. Pungent odor present if odorizing agent is added.

- **Odor threshold:** Not determined.

- **pH-value:** Not determined.

- **Melting point/Melting range:** Not determined.

- **Boiling point/Boiling range:** -12 °C (10.4 °F)

- **Flash point:** -83 °C (-117.4 °F)

- **Flammability (solid, gaseous):** Extremely flammable gas.

- **Auto-ignition temperature:** >460 °C (>860 °F)

- **Decomposition temperature:** Not determined.

- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

- **Explosion limits**

**Lower:** 1.8 Vol %

**Upper:** 8.4 Vol %

- **Oxidizing properties:** Not determined.

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- |   |                                    |
|---|------------------------------------|
| · <b>Vapor pressure at 37.8 °C (100 °F):</b>      | 2350 mmHg (45.4 psi)               |
| · <b>Density:</b>                                 |                                    |
| <b>Relative density:</b>                          | 0.563                              |
| <b>Vapor density:</b>                             | Not determined.                    |
| <b>Relative vapor density at 20 °C (68 °F):</b>   | 2.06 (air = 1)                     |
| <b>Evaporation rate:</b>                          | Not applicable.                    |
| · <b>Solubility in / Miscibility with Water:</b>  | Not miscible or difficult to mix.  |
| · <b>Partition coefficient (n-octanol/water):</b> | Not determined.                    |
| · <b>Viscosity</b>                                |                                    |
| <b>Dynamic:</b>                                   | Not determined.                    |
| <b>Kinematic:</b>                                 | Not determined.                    |
| · <b>Other information</b>                        | No relevant information available. |

### 10 Stability and reactivity

- **Reactivity:** No data available for self-reactivity.
- **Chemical stability:** Stable under normal temperatures and pressures.
- **Thermal decomposition / conditions to be avoided:**  
Danger of receptacles bursting because of high vapor pressure if heated.
- **Possibility of hazardous reactions**  
Extremely flammable gas.  
Reacts with halogenated compounds.  
Develops readily flammable gases / fumes.  
Reacts with oxidizing agents.  
Can form explosive mixtures in air if heated above flash point and/or when sprayed or atomized.  
Hazardous gases may be released if heated above the decomposition point.
- **Conditions to avoid**  
Excessive heat.  
Keep ignition sources away - Do not smoke.
- **Incompatible materials**  
Oxidizers  
Halogenated compounds.
- **Hazardous decomposition products**  
Under fire conditions only:  
Carbon monoxide and carbon dioxide

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **LD/LC50 values that are relevant for classification:** None.
- **Primary irritant effect:**
- **On the skin:** Based on available data, the classification criteria are not met.

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- **On the eye:** Based on available data, the classification criteria are not met.
- **Sensitization:** Based on available data, the classification criteria are not met.

**IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

**NTP (National Toxicology Program):**

None of the ingredients are listed.

**OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

**Probable route(s) of exposure:**

Inhalation.  
Eye contact.  
Skin contact.

**Acute effects (acute toxicity, irritation and corrosivity):**

May displace oxygen and cause rapid suffocation.

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

### 12 Ecological information

- **Toxicity**
- **Aquatic toxicity** No relevant information available.
- **Persistence and degradability** No relevant information available.
- **Bioaccumulative potential:** No relevant information available.
- **Mobility in soil:** No relevant information available.
- **Additional ecological information**
- **General notes:** Not known to be hazardous to water.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Contact waste processors for recycling information.  
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

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### 14 Transport information

<ul style="list-style-type: none"> <li>· UN-Number</li> <li>· DOT, ADR, IMDG, IATA</li> </ul>	<p style="text-align: right;">UN1075</p>
<ul style="list-style-type: none"> <li>· UN proper shipping name</li> <li>· DOT, IATA</li> <li>· ADR, IMDG</li> </ul>	<p style="text-align: right;">Petroleum gases, liquefied PETROLEUM GASES, LIQUEFIED</p>
<ul style="list-style-type: none"> <li>· Transport hazard class(es)</li> <li>· DOT</li> </ul>	<div style="text-align: right;">  </div>
<ul style="list-style-type: none"> <li>· Class</li> <li>· Label</li> </ul>	<p style="text-align: right;">2.1 2.1</p>
<ul style="list-style-type: none"> <li>· ADR</li> </ul>	<div style="text-align: right;">  </div>
<ul style="list-style-type: none"> <li>· Class</li> <li>· Label</li> </ul>	<p style="text-align: right;">2.1 2F 2.1</p>
<ul style="list-style-type: none"> <li>· IMDG, IATA</li> </ul>	<div style="text-align: right;">  </div>
<ul style="list-style-type: none"> <li>· Class</li> <li>· Label</li> </ul>	<p style="text-align: right;">2.1 2.1</p>
<ul style="list-style-type: none"> <li>· Packing group</li> </ul>	<p style="text-align: right;">This UN-number is not assigned a packing group.</p>
<ul style="list-style-type: none"> <li>· Environmental hazards</li> <li>· Marine pollutant:</li> </ul>	<p style="text-align: right;">No</p>
<ul style="list-style-type: none"> <li>· Special precautions for user</li> <li>· Danger code (Kemler):</li> <li>· EMS Number:</li> </ul>	<p style="text-align: right;">Not applicable. 21 F-D,S-U</p>
<ul style="list-style-type: none"> <li>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</li> </ul>	<p style="text-align: right;">Not applicable.</p>
<ul style="list-style-type: none"> <li>· Transport/Additional information:</li> </ul>	
<ul style="list-style-type: none"> <li>· IATA</li> </ul>	<div style="text-align: right;">  <p>Cargo Aircraft Only.</p> </div>

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## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **United States (USA)**
- **SARA**

• <b>Section 302 (extremely hazardous substances):</b>
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None of the ingredients are listed.
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• <b>Section 355 (extremely hazardous substances):</b>
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None of the ingredients are listed.
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• <b>Section 313 (Specific toxic chemical listings):</b>
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None of the ingredients are listed.
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• <b>TSCA (Toxic Substances Control Act)</b>
--

All ingredients are listed.
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• <b>Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):</b>
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75-28-5	isobutane	10000
106-97-8	butane	10000
74-98-6	Propane	10000
75-08-1	ethyl mercaptan	10000

• <b>Proposition 65 (California)</b>
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• <b>Chemicals known to cause cancer:</b>
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None of the ingredients are listed.
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• <b>Chemicals known to cause developmental toxicity for females:</b>
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None of the ingredients are listed.
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• <b>Chemicals known to cause developmental toxicity for males:</b>
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None of the ingredients are listed.
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• <b>Chemicals known to cause developmental toxicity:</b>
---

None of the ingredients are listed.
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• <b>EPA (Environmental Protection Agency):</b>
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None of the ingredients are listed.
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• <b>IARC (International Agency for Research on Cancer):</b>
--

None of the ingredients are listed.
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• <b>Canadian Domestic Substances List (DSL) (Substances not listed.):</b>
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All ingredients are listed.
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## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

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IMDG: International Maritime Code for Dangerous Goods  
DOT: US Department of Transportation  
IATA: International Air Transport Association  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bio-accumulable, Toxic  
vPvB: very Persistent and very Bioaccumulative  
OSHA: Occupational Safety & Health Administration  
Flam. Gas 1: Flammable gases – Category 1  
Press. Gas: Gases under pressure – Compressed gas  
Flam. Liq. 2: Flammable liquids – Category 2  
Acute Tox. 4: Acute toxicity – Category 4

**Sources**

Website, European Chemicals Agency ([echa.europa.eu](http://echa.europa.eu))  
Website, US EPA Substance Registry Services ([ofmpub.epa.gov/sor-internet/registry/substreg/home/overview/home.do](http://ofmpub.epa.gov/sor-internet/registry/substreg/home/overview/home.do))  
Website, Chemical Abstracts Registry, American Chemical Society ([www.cas.org](http://www.cas.org))  
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6  
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.  
Safety Data Sheets, Individual Manufacturers

SDS Prepared by:  
ChemTel Inc.  
1305 North Florida Avenue  
Tampa, Florida USA 33602-2902  
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573  
Website: [www.chemtelinc.com](http://www.chemtelinc.com)