



# SAFETY DATA SHEET

## 1. Identification

**Product identifier** Propane

### Other means of identification

**SDS No.** WC002

### Recommended use of the chemical and restrictions on use

**Recommended use** Portable fuel.

**Restrictions on use** Not available.

### Details of manufacturer or importer

**Manufacturer/Supplier** Worthington Cylinder Corporation

**Address** 300 E. Breed St., Chilton, WI 53014

United States

**Contact person** Ann Stiefvater

**E-mail address** Ann.Stiefvater@worthingtonindustries.com

**Telephone number** 1-920-849-1740

**Emergency telephone number** 1-703-527-3887 International / CHEMTREC 1-800-424-9300 Domestic

## 2. Hazard(s) identification

### Classification of the hazardous chemical

**Physical hazards** Flammable gases Category 1  
Gases under pressure Liquefied gas

**Health hazards** Not classified.

### Label elements, including precautionary statements

#### Hazard symbol(s)



Flame Gas cylinder

**Signal word** Danger

**Hazard statement(s)** Extremely flammable gas. Contains gas under pressure; may explode if heated.

#### Precautionary statement(s)

**Prevention** Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

**Response** Eliminate all ignition sources if safe to do so. In case of leakage, eliminate all ignition sources.

**Storage** Protect from sunlight. Store in a well-ventilated place.

**Disposal** Dispose of waste and residues in accordance with local authority requirements.

**Other hazards which do not result in classification** May displace oxygen and cause rapid suffocation.

**Supplemental information** None.

## 3. Composition/information on ingredients

### Mixture

Identity of chemical ingredients	CAS number and other unique identifiers	Concentration of ingredients
Propane	74-98-6	87.5 - 100
Propylene	115-07-1	0 - 10
Ethane	74-84-0	0 - 7

Butane	106-97-8	0 - 2.5
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#### Additives

Identity of chemical ingredients	CAS number and other unique identifiers	Concentration of ingredients
Ethyl mercaptan	75-08-1	<0.005

**Composition comments** Gas concentrations are in percent by volume. Contains <0.005% Ethyl mercaptan (CAS 75-08-1) as an odorant.

#### 4. First-aid measures

##### Description of necessary first aid measures

<b>Inhalation</b>	Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory tract irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.
<b>Skin contact</b>	Not likely, due to the form of the product. If frostbite occurs, immerse affected area in warm water (not exceeding 105°F/41°C). Keep immersed for 20 to 40 minutes. Get medical attention immediately.
<b>Eye contact</b>	Not likely, due to the form of the product. If frostbite occurs, immediately flush eyes with plenty of warm water (not exceeding 105°F/41°C) for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention promptly if symptoms persist or occur after washing.
<b>Ingestion</b>	This material is a gas under normal atmospheric conditions and ingestion is unlikely.
<b>Personal protection for first-aid responders</b>	First aid personnel must be aware of own risk during rescue. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
<b>Symptoms caused by exposure</b>	Exposure to rapidly expanding gas or vapourizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect himself.
<b>Medical attention and special treatment</b>	Exposure may aggravate pre-existing respiratory disorders. Provide general supportive measures and treat symptomatically.

#### 5. Fire-fighting measures

##### Extinguishing media

**Suitable extinguishing media** Dry chemical powder. Carbon dioxide (CO<sub>2</sub>). Water fog. Foam.

**Unsuitable extinguishing media** Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical** Extremely flammable gas. May form explosive mixtures with air. Gas may travel considerable distance to a source of ignition and flash back. During fire, gases hazardous to health may be formed.

**Special protective equipment and precautions for fire fighters** Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions** Do not extinguish fires unless gas flow can be stopped safely; explosive re-ignition may occur. Promptly isolate the scene by removing all persons from the vicinity of the incident. No action shall be taken involving any personal risk or without suitable training. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. Stop flow of material. Use water to keep fire exposed containers cool and to protect personnel effecting shutoff. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.

**Hazchem code** None.

**General fire hazards** Extremely flammable gas. Contents under pressure. Pressurised container may explode when exposed to heat or flame.

**Specific methods** Use standard firefighting procedures and consider the hazards of other involved materials. Cool containers exposed to flames with water until well after the fire is out.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** Evacuate the area promptly. No action shall be taken involving any personal risk or without suitable training. In the event of a leak evacuate all personnel until ventilation can restore oxygen concentrations to safe levels. Keep unnecessary personnel away. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Wear appropriate personal protective equipment (See Section 8).

**For emergency responders** Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up.

**Environmental precautions** Should not be released into the environment. Prevent further leakage or spillage if safe to do so.

**Methods and materials for containment and cleaning up** Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil etc) away from spilled material. Stop leak if you can do so without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Isolate area until gas has dispersed. For waste disposal, see section 13 of the SDS.

## 7. Handling and storage

**Precautions for safe handling** Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not smoke. All equipment used when handling the product must be grounded. Do not breathe gas. Avoid prolonged exposure. Do not enter storage areas or confined spaces unless adequately ventilated. Use only outdoors or in a well-ventilated area. Oxygen concentration should not fall below 19.5 % at sea level (pO<sub>2</sub> = 135 mmHg). Mechanical ventilation or local exhaust ventilation may be required. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities** Do not store, incinerate, or heat this material above 120 degrees Fahrenheit. Keep away from heat, sparks and open flame. This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Protect cylinders from damage. Stored containers should be periodically checked for general condition and leakage. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

## 8. Exposure controls and personal protection

### Control parameters

#### Occupational exposure limits

##### Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A)

Components	Type	Value
Butane (CAS 106-97-8)	TWA	1900 mg/m <sup>3</sup>
		800 ppm

##### Australia. OELs. (Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment)

Components	Type	Value
Butane (CAS 106-97-8)	TWA	1900 mg/m <sup>3</sup>
		800 ppm

##### US. ACGIH Threshold Limit Values

Components	Type	Value
Butane (CAS 106-97-8)	STEL	1000 ppm
Propylene (CAS 115-07-1)	TWA	500 ppm

##### UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
Butane (CAS 106-97-8)	STEL	1810 mg/m <sup>3</sup>
		750 ppm
	TWA	1450 mg/m <sup>3</sup>
		600 ppm

**Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)**

Components	Type	Value
Butane (CAS 106-97-8)	TWA	2400 mg/m <sup>3</sup>
		1000 ppm
Propane (CAS 74-98-6)	TWA	1800 mg/m <sup>3</sup>
		1000 ppm

<b>Biological limit values</b>	No biological exposure limits noted for the ingredient(s).
<b>Exposure guidelines</b>	Follow standard monitoring procedures.
<b>Appropriate engineering controls</b>	Provide adequate ventilation and minimize the risk of inhalation of gas. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
<b>Individual protection measures, for example personal protective equipment (PPE)</b>	
<b>Eye/face protection</b>	Wear approved safety glasses or goggles. Face shield is recommended.
<b>Skin protection</b>	
<b>Hand protection</b>	Regular work gloves.
<b>Other</b>	Wear protective clothing appropriate for the risk of exposure.
<b>Respiratory protection</b>	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
<b>Thermal hazards</b>	Contact with liquefied gas might cause frostbites, in some cases with tissue damage. Wear appropriate thermal protective clothing, when necessary.
<b>Hygiene measures</b>	Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.

## 9. Physical and chemical properties

<b>Appearance</b>	
<b>Physical state</b>	Gas (Liquefied).
<b>Form</b>	Compressed liquefied gas.
<b>Colour</b>	Colourless.
<b>Odour</b>	Rotten egg.
<b>Odour threshold</b>	Not available.
<b>pH</b>	Not applicable.
<b>Melting point/freezing point</b>	-188 °C (-306.4 °F)
<b>Initial boiling point and boiling range</b>	-42 °C (-43.6 °F) 14.7 psia
<b>Flash point</b>	-104.0 °C (-155.2 °F)
<b>Evaporation rate</b>	Not applicable.
<b>Flammability (solid, gas)</b>	Extremely flammable gas.
<b>Upper/lower flammability or explosive limits</b>	
<b>Explosive limit - lower (%)</b>	2.15 %
<b>Explosive limit – upper (%)</b>	9.6 %
<b>Vapour pressure</b>	127 psig (21°C / 70°F)
<b>Vapour density</b>	Not available.
<b>Relative density</b>	0.504 (liquid) 1.5 (vapour) (air=1) @ 15°C / 60°F
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Slightly soluble in water.
<b>Partition coefficient (n-octanol/water)</b>	1.77
<b>Auto-ignition temperature</b>	432 °C (809.6 °F)

**Decomposition temperature** Not available.

**Viscosity** Not applicable.

**Other physical and chemical parameters**

**Explosive properties** Not explosive.

**Molecular weight** 45 g/mol

**Oxidising properties** Not oxidising.

**Percent volatile** 100 %

## 10. Stability and reactivity

**Reactivity** Reacts violently with strong oxidants, nitrites, inorganic chlorides, chlorites and perchlorates causing fire and explosion hazard.

**Chemical stability** Stable under normal temperature conditions and recommended use.

**Possibility of hazardous reactions** Polymerization will not occur. May form explosive mixture with air. This product may react with oxidizing agents.

**Conditions to avoid** Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.

**Incompatible materials** Strong oxidising agents. Halogens. Nitrates.

**Hazardous decomposition products** Thermal decomposition of this product can generate carbon monoxide and carbon dioxide. Hydrocarbons.

## 11. Toxicological information

### Information on possible routes of exposure

**Inhalation** High concentrations: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of co-ordination. Continued inhalation may result in unconsciousness.

**Skin contact** Contact with liquefied gas may cause frostbite.

**Eye contact** Contact with liquefied gas may cause frostbite.

**Ingestion** This material is a gas under normal atmospheric conditions and ingestion is unlikely.

**Symptoms related to exposure** Exposure to rapidly expanding gas or vapourizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves.

**Acute toxicity** Not expected to be acutely toxic.

Components	Species	Test Results
Propane (CAS 74-98-6)		
<b>Acute</b>		
<b>Inhalation</b>		
Gas		
LC50	Rat	> 80000 ppm, 15 Minutes
Propylene (CAS 115-07-1)		
<b>Acute</b>		
<b>Inhalation</b>		
Gas		
LC50	Rat	> 65000 ppm, 4 Hours
<b>Skin corrosion/irritation</b>	Not classified. Based on available data, the classification criteria are not met.	
<b>Serious eye damage/irritation</b>	Not classified. Based on available data, the classification criteria are not met.	
<b>Respiratory or skin sensitisation</b>		
<b>Respiratory sensitisation</b>	Not a respiratory sensitizer. Due to partial or complete lack of data the classification is not possible.	
<b>Skin sensitisation</b>	This product is not expected to cause skin sensitisation. Due to partial or complete lack of data the classification is not possible.	
<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic. Due to partial or complete lack of data the classification is not possible.	
<b>Carcinogenicity</b>	Not classifiable as to carcinogenicity to humans. Due to partial or complete lack of data the classification is not possible.	

### ACGIH Carcinogens

Propylene (CAS 115-07-1)

A4 Not classifiable as a human carcinogen.

### IARC Monographs. Overall Evaluation of Carcinogenicity

Propylene (CAS 115-07-1)

3 Not classifiable as to carcinogenicity to humans.

<b>Reproductive toxicity</b>	This product is not expected to cause reproductive or developmental effects. Due to partial or complete lack of data the classification is not possible.
<b>Specific target organ toxicity - single exposure</b>	Not classified. Due to partial or complete lack of data the classification is not possible.
<b>Specific target organ toxicity - repeated exposure</b>	Not classified. Due to partial or complete lack of data the classification is not possible.
<b>Aspiration hazard</b>	Not likely, due to the form of the product. Based on available data, the classification criteria are not met.
<b>Chronic effects</b>	Exposure over a long period of time may cause central nervous system effects.

## 12. Ecological information

**Ecotoxicity** The product is not expected to be hazardous to the environment.

**Persistence and degradability** Not relevant, due to the form of the product.

**Bioaccumulative potential** Not relevant, due to the form of the product.

### Partition coefficient

#### n-octanol / water (log Kow)

Butane (CAS 106-97-8)	2.89
Propane (CAS 74-98-6)	2.36
Propylene (CAS 115-07-1)	1.77

**Mobility in soil** Not relevant, due to the form of the product.

**Other adverse effects** The product contains volatile organic compounds which have a photochemical ozone creation potential.

## 13. Disposal considerations

**Disposal methods** Use the container until empty. Do not dispose of any non-empty container. Empty containers have residual vapor that is flammable and explosive. Cylinders should be emptied and returned to a hazardous waste collection point. Do not puncture or incinerate even when empty. Dispose in accordance with all applicable regulations.

**Residual waste** Dispose in accordance with all applicable regulations.

**Contaminated packaging** Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport information

### ADG

<b>UN number</b>	1075
<b>UN proper shipping name</b>	PETROLEUM GASES, LIQUEFIED
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary risk</b>	-
<b>Packing group</b>	Not applicable.
<b>Environmental hazards</b>	No
<b>Hazchem code</b>	2YE
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

### RID

<b>UN number</b>	1075
<b>UN proper shipping name</b>	PETROLEUM GASES, LIQUEFIED
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	2.1 (+13)
<b>Packing group</b>	Not applicable.
<b>Environmental hazards</b>	No.
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

### IATA

<b>UN number</b>	1075
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<b>UN proper shipping name</b>	Petroleum gases, liquefied
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary risk</b>	-
<b>Label(s)</b>	2.1
<b>Packing group</b>	Not applicable.
<b>Environmental hazards</b>	No
<b>ERG Code</b>	10L
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

#### IMDG

<b>UN number</b>	1075
<b>UN proper shipping name</b>	PETROLEUM GASES, LIQUEFIED
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary risk</b>	-
<b>Packing group</b>	Not applicable.
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No
<b>EmS</b>	E-D, S-U
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.

## 15. Regulatory information

### Safety, health and environmental regulations

**National regulations** This Safety Data Sheet was prepared in accordance with Australia Model Code of Practice for the preparation of Safety Data Sheets for Hazardous Chemicals (23/12/2011).

**Australia Medicines & Poisons Appendix A**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Appendix B**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Appendix D**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Appendix E**

Butane (CAS 106-97-8)

**Australia Medicines & Poisons Appendix F**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Appendix G**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Appendix H**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Appendix I**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Appendix J**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Appendix K**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Schedule 10**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Schedule 2**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Schedule 3**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Schedule 4**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Schedule 5**

Butane (CAS 106-97-8)

**Australia Medicines & Poisons Schedule 6**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Schedule 7**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Schedule 8**

Poisons schedule number not allocated.

**Australia Medicines & Poisons Schedule 9**

Poisons schedule number not allocated.

**High Volume Industrial Chemicals (HVIC)**

Butane (CAS 106-97-8)

100000 - 999999 TONNES See the regulation for additional information.

Propane (CAS 74-98-6)

100000 - 999999 TONNES See the regulation for additional information.

Propylene (CAS 115-07-1)

10000 - 99999 TONNES See the regulation for additional information.

**Importation of Ozone Depleting Substances (Customs(Prohibited imports) Regulations 1956, Schedule 10)**

Not listed.

**National Pollutant Inventory (NPI) substance reporting list**

Not listed.

**Prohibited Carcinogenic Substances**

Not regulated.

**Prohibited Substances (National Model Regulation for the control of Workplace Hazardous Substances, Schedule 2 NOHSC:1005 (1994) as amended)**

Not listed.

**Restricted Importation of Organochlorine Chemicals (Customs(Prohibited Imports) Regulations 1956, Schedule 9)**

Not listed.

**Restricted Carcinogenic Substances**

Not regulated.

**International regulations****Stockholm Convention**

Not applicable.

**Rotterdam Convention**

Not applicable.

**Kyoto Protocol**

Not applicable.

**Montreal Protocol**

Not applicable.

**Basel Convention**

Not applicable.

**International Inventories****Country(s) or region****Inventory name****On inventory (yes/no)\***

Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information

**Issue date** 22-February-2019

**Revision date** -

### Key abbreviations or acronyms used

STEL: Short term exposure limit.

TWA: Time weighted average.

RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.

IATA: International Air Transport Association.

IMDG Code: International Maritime Dangerous Goods Code.

ADN: European Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways.

ADG: Australian Dangerous Goods.

### References

Workplace Threshold Quantities of Hazardous Chemicals

### Disclaimer

All information in this Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.