Safety Data Sheet

According to 1907/2006/EG Regulation, Article 31

Substance: Propane

Stand: 21.03.2021 / Rev.-Nr. 04

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Trade name: Item No.: 16847/Propane cylinder 14.1 oz (400 g)

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

Product Use: Portable fuel.
Uses Advised Against: None known.

1.3 Details of the Supplier of the safety data sheet

REFCO Manufacturing Ltd. Industriestrasse 11 | 6285 Hitzkirch Switzerland
Tel. +41 41 919 72 82 | Fax +41 41 919 72 83
E-Mail: info@refco.ch

Original Safety Data Sheet:
Worthington Cylinder Corporation
300 E. Breed St., Chilton, WI 5301
Vereinigte Staaten
E-Mailadresse: Ann.Stiefvater@worthingtonindustries.com

1.4 Emergency Telephone Number

Swiss Toxicological Information Centre, CH 8028 Zürich
Notruf 145 oder +41 44 251 51 51
Nicht dringende Anrufe: +41 44 251 66 66

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture according to 1272/2008

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Physical hazards

Flammable gases	Category 1A	H220 - Extremely flammable gas.
Gases under pressure	Liquefied gas	H280 - Contains gas under pressure may explode if heated.

2.2 Label Elements

Labelling according to Directive 1272/2008/EC

EC Symbols:

Signal word: **Danger**

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

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.

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

Supplemental label information: None.

Safety Data Sheet

According to 1907/2006/EG Regulation, Article 31

Substance: Propane

Stand: 21.03.2021 / Rev.-Nr. 04

2.3 Other Hazards

May displace oxygen and cause rapid suffocation. Contact with liquefied gas may cause frostbite. This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII. The product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Chemical name	%	CAS-No. / CE-No.	REACH	Index-No.	Classification	Notes
Propane	87.5 – 100	74-98-6 200-827-9	-	601-003-00-5	Flam. Gas 1; H220, Press. Gas; H280	U
Propylene	0 – 10	115-07-1 204-062-1	-	601-011-00-9	Flam. Gas 1; H220, Press. Gas; H280	U
Ethane	0 – 7	74-84-0 200-814-8		601-002-00-X	Flam. Gas 1; H220	U
Butane	0 – 2.5	106-97-8 203-448-7		601-004-01-8	Flam. Gas 1; H220, Press. Gas; H280	C,S,U
Additives						
Ethyl mercaptan	<0,005	75-08-1 200-837-3		016-022-00-9		

List of abbreviations and symbols that may be used above

Note C: Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers. In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers.
Note S: This substance may not require a label according to Article 17 (see section 1.3 of Annex I) (Table 3.1). This substance may not require a label according to Article 23 of Directive 67/548/EEC (see section 8 of Annex VI to that Directive) (Table 3.2).
Note U (Table 3.1): When put on the market gases have to be classified as "Gases under pressure", in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case.

Composition comments:

The full text for all H-statements is displayed in section 16.
Gas concentrations are in percent by volume.

4. FIRST AID MEASURES

General Information

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.

4.1 Description of First Aid Measures

Inhalation

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.

Skin Contact

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.

Eye Contact
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.

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

4.2 Most important symptoms and effects, both acute and delayed
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 themself.

4.3 Indication of any immediate medical attention and special treatment needed
Exposure may aggravate pre-existing respiratory disorders. Provide general supportive measures and treat symptomatically.

5. FIRE FIGHTING MEASURES

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

5.1 Extinguishing Media

Suitable extinguishing media:	Dry chemical powder. Carbon dioxide (CO2). Water fog. Foam.
Unsuitable Extinguishing Media:	Do not use water jet as an extinguisher, as this will spread the fire.

5.2 Special hazards arising from the substance or mixture
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.

5.3 Advice for firefighters
Special protective equipment for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Special fire fighting procedures
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.

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

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

For non-emergency personnel
Evacuate the area promptly. Keep unnecessary personnel away. Wear appropriate personal protective equipment.

For emergency responders
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. 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 protective equipment and clothing during clean-up.

Safety Data Sheet

According to 1907/2006/EG Regulation, Article 31

Substance: Propane

Stand: 21.03.2021 / Rev.-Nr. 04

6.2 Environmental Precautions

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

6.3 Methods and Material 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.

6.4 Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

7. HANDLING AND STORAGE

7.1 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. 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 (pO2 = 135 mmHg). Mechanical ventilation or local exhaust ventilation may be required. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

7.2 Conditions for safe storage, including any incompatibilities

Store at temperatures not exceeding 49°C/120°F. Keep away from heat, sparks and open flame. 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. Keep container tightly closed. Store in a well-ventilated place. Use care in handling/storage. Store away from incompatible materials (see section 10 of the SDS).

7.3. Specific end use(s)

Soldering and brazing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Occupational Exposure Limits

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value
Butane (CAS 106-97-8)	STEL	1810 mg/m3 750 ppm
Propane (CAS 74-98-6)	TWA	1450 mg/m3 600 ppm

Biological limit values	No biological exposure limits noted for the ingredient(s).
Recommended monitoring procedures	Follow standard monitoring procedures.
Derived no effect levels (DNELs)	Not available.
Predicted no effect concentrations (PNECs)	Not available.
Exposure guidelines	Follow standard monitoring procedures.

8.2 Exposure Controls

Appropriate engineering controls

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.

Individual protection measures, such as personal protective

General information

Use personal protective equipment as required. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Safety Data Sheet

According to 1907/2006/EG Regulation, Article 31

Substance: Propane

Stand: 21.03.2021 / Rev.-Nr. 04

Eye/face protection

Wear approved safety glasses or goggles. Face shield is recommended. Eye protection should meet standard EN 166.

Skin protection

- Hand protection

Wear suitable gloves tested to EN374. Wear cold insulating gloves.

- Other

Wear protective clothing appropriate for the risk of exposure.

Respiratory protection

(in deficient atmospheres.)

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level countries where exposure limits have not been established), an approved respirator must be worn.
WARNING! Air-purifying respirators do not protect workers in oxygen

Thermal Hazards

Contact with liquefied gas might cause frostbites, in some cases with tissue damage. Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

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.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	Gas
Form	Compressed liquefied gas.
Color	Colorless
Odor	Rotten egg.
Odor threshold	Not determined
pH	Not applicable
Melting point / freezing point	-188 °C (-306.4 °F)
Initial Boiling Point and Boiling range	-42 °C (-43.6 °F) 14.7 psia
Flash point	-104.0 °C (-155.2 °F)
Evaporation rate	Not applicable.
Flammability (solid, gas)	Extremely flammable gas.
Vapor pressure	127 psig (21°C / 70°F)
Vapor density	Not available.
Relative density	0.504 (liquid) 1.5 (vapor) (air=1) @ 15°C / 59°F
Solubility (water)	Slightly soluble in water.
Partition coefficient (n-octanol/water)	1.77

Auto-ignition temperature	432 °C (809.6 °F)
Decomposition temperature	Not determined
Viscosity	Not determined
Oxidising properties	Not oxidising

9.2 Other Information

Information with regard to physical hazard classes	No relevant additional information available.
Evaporation rate	Not determined.
Molecular weight	45g/mol
Percent volatile	100%
Viscosity	Not applicable

10. STABILITY AND REACTIVITY

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

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

10.3 Possibility of Hazardous Reactions
Polymerization will not occur. May form explosive mixture with air. This product may react with oxidizing agents.

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

10.5 Incompatible Materials
Strong oxidising agents. Strong acids. Halogens. Nitrates.

10.6 Hazardous Decomposition Products
Thermal decomposition of this product can generate carbon monoxide and carbon dioxide. Hydrocarbons.

11. TOXICOLOGICAL INFORMATION

General Information
Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

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

Inhalation High concentrations: 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.

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

Safety Data Sheet

According to 1907/2006/EG Regulation, Article 31

Substance: Propane

Stand: 21.03.2021 / Rev.-Nr. 04

11.1 Information on toxicological Effects

Acute toxicity
Not expected to be acutely toxic.

Toxicological data

Components	Species	Test Results
Propane (CAS 74-98-6)		
Acute		
Gas		
Inhalation		
LC50	Rat	> 80000 ppm, 15 Minutes
Propylene (CAS 115-07-1)		
Acute		
Inhalation		
Gas	Mouse	
LC50		
	Rat	> 65000 ppm, 4 Hours

Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/ eye irritation	Based on available data, the classification criteria are not met.
Respiratory sensitization	Based on available data, the classification criteria are not met.
Skin sensitization	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.
Specific target organ toxicity – single exposure	Based on available data, the classification criteria are not met.
Specific target organ toxicity repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Not likely, due to the form of the product.
Mixture versus substance Information	No information available.
Endocrine disrupting properties	The product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Other information	Exposure over a long period of time may cause central nervous system effects.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

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

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

12.3 Bioaccumulative potential
Not relevant, due to the form of the product.
Bioconcentration factor (BCF) Not available.

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

12.5 Result of PBT and vPvB assessment
This mixture does not contain substances assessed to be vPvB / PBT according to Regulation (EC) No 1907/2006, Annex XIII.

12.6 Endocrine disrupting
The product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

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.
EU waste code	16 05 04* The waste code should be assigned in discussion between the user, the producer and the waste disposal company. The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Disposal methods/information	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.
Special precautions	Dispose of in accordance with local regulations.

Safety Data Sheet

According to 1907/2006/EG Regulation, Article 31

Substance: Propane

Stand: 21.03.2021 / Rev.-Nr. 04

14. TRANSPORT INFORMATION

ADR / RID / IMDG / IATA / ADN

14.1. UN number	UN1978
14.2. UN proper shipping Name	PROPANE
14.3. Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Label(s)	2.1, 2.1 (+13) (RID)
Hazard No. (ADR)	23
Tunnel restriction code	B/D
14.4. Packing group	-
14.5. Environmental hazards	No
14.6. Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
14.7. Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.

15. REGULATORY INFORMATION

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended
Not listed.

Regulation (EC) No. 850/2004 On persistent organic pollutants, Annex I as amended
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended
Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended
Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA
Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended
Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended
Ethyl mercaptan (CAS 75-08-1)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.
Not listed.

Safety Data Sheet

According to 1907/2006/EG Regulation, Article 31

Substance: Propane

Other EU regulations
Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended
Ethyl mercaptan (CAS 75-08-1)

Other regulations
The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations
Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended. Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

15.2. Chemical safety assessment
No Chemical Safety Assessment has been carried out.

16. OTHER INFORMATION

List of abbreviations
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.
IATA: International Air Transport Association.
IBC Code: International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.
IMDG Code: International Maritime Dangerous Goods Code.
LC50: Lethal Concentration, 50%.
MARPOL: International Convention for the Prevention of Pollution from Ships.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
STEL: Short-Term Exposure Limit.
TWA: Time Weighted Average Value.

References
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
EPA: AQUIRE database
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
NLM: Hazardous Substances Data Base

Information on evaluation method leading to the classification of mixture
The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any H-statements not written out in full under Sections 2 to 15
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

Training information
Follow training instructions when handling this material.

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.

End of the document