



SAFETY DATA SHEET

1. Identification

Product identifier Propane
Other means of identification None.
Recommended use Fuel.
Recommended restrictions Uses other than the recommended use.

Manufacturer/Importer/Supplier/Distributor information

Company name CHS Inc.
Address Mail Station 525
PO Box 64089
St. Paul, MN 55164-0089
United States of America
Website www.chsinc.com
Telephone 651-355-6000
Emergency telephone 1-800-424-9300 (within USA & Canada)

2. Hazard(s) identification

Physical hazards Flammable gases Category 1
Gases under pressure Liquefied gas

Health hazards Not classified.

OSHA defined hazards Simple asphyxiant

Label elements



Signal word Danger

Hazard statement Extremely flammable gas. Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only with adequate ventilation. Do not enter storage areas or confined spaces unless adequately ventilated.

Response Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage Keep container tightly closed. Protect from sunlight. Store in a well-ventilated place.

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

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Propane	74-98-6	80 - 100

Impurities

Chemical name	Common name and synonyms	CAS number	%
Propylene		115-07-1	<20
Ethane		74-84-0	<6

Impurities

Chemical name	Common name and synonyms	CAS number	%
Butane (<0.1% butadiene)		106-97-8	<5
Butane		75-28-5	<2.5

This product is classified as a simple asphyxiant. When working with this material, the minimal oxygen content should be 18 percent by volume under normal atmospheric pressure. Odorized products contain small quantities of ethyl mercaptan as an olfactory indicator.

Composition comments Occupational Exposure Limits for constituents are listed in Section 8. Gas concentrations are in percent by volume.

4. 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. Get medical attention immediately.

Skin contact

Liquefied gases may cause cryogenic burns or injury. Treat burned or frostbitten skin by flushing or immersing the affected area(s) in lukewarm water. Get medical attention immediately.

Eye contact

Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling. Flush eyes thoroughly with lukewarm water for at least 15 minutes. Get medical attention immediately.

Ingestion

Not likely, due to the form of the product. However: If swallowed: If symptomatic, seek medical advice.

Most important symptoms/effects, acute and delayed

Frostbite. Headache. Dizziness. Fatigue. Nausea, vomiting. 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.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media

Small fires: Dry chemical powder. Carbon dioxide (CO₂). Halon.
Larger fires: Water Spray or Fog.

Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical

Containers may explode when heated. Gases 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. Carbon dioxide. Carbon monoxide.

Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions

In case of fire and/or explosion do not breathe fumes. Stop leak if you can do so without risk. Do not extinguish a leaking gas fire unless leak can be stopped. Move containers from fire area if you can do so without risk. Do not direct water at source of leak or safety devices as icing may occur. Cool containers with flooding quantities of water until well after fire is out. Dike fire control water for later disposal. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. ALWAYS stay away from tanks engulfed in flame. If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards

Extremely flammable gas. Contents under pressure. Pressurized container may explode when exposed to heat or flame.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

In the event of a leak evacuate all personnel until ventilation can restore oxygen concentrations to safe levels. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep out of low areas. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Wear appropriate protective equipment and clothing during clean-up. Emergency personnel need self-contained breathing equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not breathe gas. Avoid contact with cold gas. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

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. Use water spray to reduce vapors or divert vapor cloud drift. Use non-sparking tools and explosion-proof equipment. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. The product is immiscible with water.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Prevent further leakage or spillage if safe to do so.

Environmental precautions

7. Handling and storage

Precautions for safe handling

Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Do not enter storage areas or confined spaces unless adequately ventilated. Use only outdoors or in a well-ventilated area. Mechanical ventilation or local exhaust ventilation may be required. Oxygen concentration should not fall below 19.5 % at sea level (pO₂ = 135 mmHg). All equipment used when handling the product must be grounded. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat and flame. Do not smoke. Close valve after each use and when empty. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Purge air from system before introducing gas. Do not breathe gas. Avoid contact with cold gas. Wear appropriate personal protective equipment. Remove contaminated clothing and wash before reuse. Wash thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

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. Empty containers may contain flammable product residues. Store in tightly closed container. Store in a well-ventilated place. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials (see Section 10 of the SDS). Store in a segregated and approved area. Stored containers should be periodically checked for general condition and leakage. Do not store in unlabelled containers.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Permissible Exposure Limits (PEL) for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Propane (CAS 74-98-6)	PEL	1800 mg/m ³ 1000 ppm

US. ACGIH Threshold Limit Values (TLV)

Impurities	Type	Value
Butane (CAS 75-28-5)	STEL	1000 ppm
Propylene (CAS 115-07-1)	TWA	500 ppm
Butane (<0.1% butadiene) (CAS 106-97-8)	STEL	1000 ppm

NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended

Components	Type	Value
Propane (CAS 74-98-6)	IDLH	2.1 % 2100 ppm

Impurities	Type	Value
Butane (<0.1% butadiene) (CAS 106-97-8)	IDLH	1.6 %

NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended

Impurities	Type	Value
		2000 ppm
		1600 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Propane (CAS 74-98-6)	TWA	1800 mg/m3
		1000 ppm

Impurities	Type	Value
Butane (CAS 75-28-5)	TWA	1900 mg/m3
		800 ppm
Butane (<0.1% butadiene) (CAS 106-97-8)	TWA	1900 mg/m3
		800 ppm

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. Provide easy access to water supply and eye wash facilities.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection**Hand protection**

Wear chemical-resistant, impervious gloves. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn.

Other

Wear suitable protective clothing.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Wear NIOSH approved respirator appropriate for airborne exposure at the point of use. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties**Appearance**

Physical state Gas.

Form Liquefied gas.

Color Colorless.

Odor Skunk, rotten egg or garlic if odorant is added.

Odor threshold Not available.

pH Not available.

Melting point/freezing point -308.2 °F (-189 °C)

Initial boiling point and boiling range -43.6 °F (-42 °C)

Flash point -155.2 °F (-104 °C) Closed Cup

Evaporation rate >1 (Butyl acetate = 1)

Flammability (solid, gas) Extremely flammable gas.

Upper/lower flammability or explosive limits

Explosive limit - lower (%) 2.1 %

Explosive limit - upper (%) 9.5 %

Vapor pressure 1434 kPa (at 37.8°C)

Vapor density	> 1 (Air = 1)
Relative density	> 0.5 - < 0.51 at 60°F (15.6°C)
Solubility(ies)	
Solubility (water)	Negligible.
Auto-ignition temperature	842 °F (450 °C)
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Acids. Aluminum chloride. Chlorine. Chlorine dioxide. Halogens. Oxidizing agents.
Hazardous decomposition products	Thermal decomposition of this product can generate carbon monoxide and carbon dioxide.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.
Skin contact	Contact with liquefied gas might cause frostbites, in some cases with tissue damage.
Eye contact	Contact with liquefied gas might cause frostbites, in some cases with tissue damage.
Ingestion	Not likely, due to the form of the product. However: If the liquid is swallowed, frostbite damage to the lips, mouth and mucous membranes may occur.

Symptoms related to the physical, chemical and toxicological characteristics	Frostbite. Headache. Dizziness. Fatigue. Nausea, vomiting. 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.
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Information on toxicological effects

Acute toxicity

Components	Species	Test Results
Propane (CAS 74-98-6)		
Acute		
Inhalation		
Gas		
LC50	Rat	> 80000 ppm, 15 Minutes
Impurities	Species	Test Results
Butane (CAS 75-28-5)		
Acute		
Inhalation		
LC50	Mouse	52 mg/l, 1 Hours
Propylene (CAS 115-07-1)		
Acute		
Inhalation		
Gas		
LC50	Rat	> 65000 ppm, 4 Hours

Impurities	Species	Test Results
Butane (<0.1% butadiene) (CAS 106-97-8)		
Acute		
Inhalation		
LC50	Rat	658 mg/l, 4 Hours
Skin corrosion/irritation	Contact with liquefied gas might cause frostbite, in some cases with tissue damage.	
Serious eye damage/eye irritation	The liquid may cause frostbite with redness, pain and blurred vision.	
Respiratory or skin sensitization		
Respiratory sensitization	Not a respiratory sensitizer.	
Skin sensitization	This product is not expected to cause skin sensitization.	
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Carcinogenicity	Not classifiable as to carcinogenicity to humans.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Propylene (CAS 115-07-1)	3 Not classifiable as to carcinogenicity to humans.	
NTP Report on Carcinogens		
Not listed.		
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)		
Not listed.		
Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	Not classified.	
Aspiration hazard	Not likely, due to the form of the product.	
Further information	An atmospheric concentration of 100,000 ppm (10%) butane is not noticeably irritating to the eyes, nose, or respiratory tract but will produce slight dizziness in a few minutes of exposure. No chronic systemic effect has been reported from occupational exposure. Isobutane has been shown to increase airway resistance by bronchoconstriction and decrease pulmonary compliance and tidal volume (difficulty in breathing). Air containing 27% isobutane was found to decrease respiratory rate and proved to be fatal to rats.	

12. Ecological information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	No data is available on the degradability of this substance.
Bioaccumulative potential	The product is not expected to bioaccumulate.
Partition coefficient n-octanol / water (log Kow)	
Propane	2.36, Kow
Butane (CAS 75-28-5)	2.76
Propylene (CAS 115-07-1)	1.77
Butane (<0.1% butadiene) (CAS 106-97-8)	2.89
Ethane (CAS 74-84-0)	1.81
Mobility in soil	This product evaporates readily and volatile components will spread in the atmosphere.
Other adverse effects	Not established.

13. Disposal considerations

Disposal instructions	Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	D001: Waste Flammable material with a flash point <140 °F The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

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

14. Transport information

DOT

UN number UN1075
UN proper shipping name Liquefied petroleum gas (Propane RQ = 100 LBS)
Transport hazard class(es)
Class 2.1
Subsidiary hazard -
Label(s) 2.1
Packing group -
Environmental hazards
Marine pollutant No.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions T50
Packaging exceptions 306
Packaging non bulk 304
Packaging bulk 314, 315

IATA

UN number UN1075
UN proper shipping name Petroleum gases, liquefied (Propane)
Transport hazard class(es)
Class 2.1
Subsidiary hazard -
Packing group -
Environmental hazards No.
ERG Code 10L
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN1075
UN proper shipping name PETROLEUM GASES, LIQUEFIED (Propane)
Transport hazard class(es)
Class 2.1
Subsidiary hazard -
Packing group -
Environmental hazards
Marine pollutant No.
EmS E-D, S-U
Special precautions for user 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

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Toxic Substances Control Act (TSCA)

All components of the mixture on the TSCA 8(b) inventory are designated "active".

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories Flammable (gases, aerosols, liquids, or solids)
Gas under pressure
Simple asphyxiant

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Propylene	115-07-1	<20

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Butane (CAS 75-28-5)
Butane (<0.1% butadiene) (CAS 106-97-8)
Ethane (CAS 74-84-0)
Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List

Butane (CAS 75-28-5)
Butane (<0.1% butadiene) (CAS 106-97-8)
Ethane (CAS 74-84-0)
Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. New Jersey Worker and Community Right-to-Know Act

Butane (CAS 75-28-5)
Butane (<0.1% butadiene) (CAS 106-97-8)
Ethane (CAS 74-84-0)
Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. Pennsylvania Worker and Community Right-to-Know Law

Butane (CAS 75-28-5)
Butane (<0.1% butadiene) (CAS 106-97-8)
Ethane (CAS 74-84-0)
Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

US. Rhode Island RTK

Butane (<0.1% butadiene) (CAS 106-97-8)
Ethane (CAS 74-84-0)
Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes

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

*A "Yes" indicates that all components of this product comply 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, including date of preparation or last revision

Issue date 22-August-2024

Revision date -

Version # 01

HMIS® ratings
 Health: 2
 Flammability: 4
 Physical hazard: 3
 Personal protection: B

Disclaimer CHS Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.