

***** Section 1 - Chemical Product and Company Identification *****

Emergency # 800-424-9300 (CHEMTREC)

CAS Registry # 68476-86-8

Chemical Family: Paraffin Series Hydrocarbon

Chemical Name: n-Butane (95.1 Mole%) / Isobutane (4.9 Mole%)

Chemical Formula: C₄H₁₀

***** Section 2 - Hazards Identification *****

Emergency Overview

Product is a simple asphyxiant and may cause frost bite. **Product is colorless, tasteless, odorless, and highly flammable.**

Potential Health Effects: Eyes

Contact with liquid can freeze tissue similar to thermal burn.

Potential Health Effects: Skin

Contact with liquid may freeze tissue, similar to thermal burn.

Potential Health Effects: Ingestion

Not a likely route of exposure under normal product handling conditions.

Potential Health Effects: Inhalation

Acute exposure may cause nausea, vomiting, coughing and pulmonary irritation. No apparent ill effects in breathing concentrations of 5% for 2 hours. Causes drowsiness in a short time in concentrations of 1%. Chronic exposure may cause dizziness, weakness, peripheral numbness and nervousness.

HMIS Ratings: Health: 1 Fire: 4 HMIS Reactivity 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

***** Section 3 - Composition / Information on Ingredients *****

CAS #	Component	Percent
68476-86-8	Petroleum gases, liquefied, sweetened	100

***** Section 4 - First Aid Measures *****

First Aid: Eyes

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

First Aid: Skin

May cause frostbite. Seek medical attention.

First Aid: Ingestion

Substance is a mixture of liquefied petroleum gas; ingestion is not a normal route for exposure.

First Aid: Inhalation

Remove to fresh air. If breathing has stopped, give artificial respiration taking care to avoid contact with this product. Seek medical advice.

Material Safety Data Sheet

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

See Section 9 for Flammability Properties.

Product is highly flammable and forms explosive mixtures with air, oxygen, and all oxidizing agents. Extreme hazard; gas leaks or liquid spills readily form flammable mixtures at temperatures below ambient. Risk of fire or explosion by mechanical impact, friction, sparks, flames or other sources of ignition. Auto refrigeration; drains can be plugged and valves made inoperable by the formation of ice when expanding vapors or vaporizing liquid cause temperatures to fall below 0°C. Vapors settle to ground level and may reach ignition sources remote from the point of escape via drains and other underground passages. Static discharge; material can accumulate static charges which may cause an incendiary electrical discharge.

Hazardous Combustion Products

Smoke, carbon monoxide may be formed in the event of incomplete combustion.

Extinguishing Media

Carbon Dioxide, dry chemical, mist or water spray.

Fire Fighting Equipment/Instructions

Fire Fighting Measures:

Flammability: Do not attempt to extinguish the fire until the source is shut off. Fire and Explosion Hazards: Extreme hazard; gas leaks or liquid spills readily form flammable mixtures at temperatures below ambient. Risk of fire or explosion by mechanical impact, friction, sparks, flames or other sources of ignition. Auto refrigeration; drains can be plugged and valves made inoperable by the formation of ice when expanding vapors or vaporizing liquid cause temperatures to fall below 0°C. Vapors settle to ground level and may reach ignition sources remote from the point of escape via drains and other underground passages. Static discharge; material can accumulate static charges which may cause an incendiary electrical discharge.

Special Fire-Fighting Procedures:

To prevent uncontrolled explosive re-ignition, do not extinguish flame at leak. Cut off fuel if safe to do so and/or allow fire to burn out under controlled conditions. Extinguish small residual fires with foam or dry chemical powder. Respiratory and eye protection required for firefighting personnel exposed to fumes or smoke. Use water spray to cool equipment.

Fire fighters should do the following:

- * Fight fire from the maximum distance possible, or use unmanned Hose holders or monitor nozzles.
- * Cool containers by flooding them with large quantities of water until well after fire is out.
- * Do not direct water at the source of leak or at safety devices; icing may occur.
- * Leave the area immediately if you hear a rising sound from venting safety devices or see discoloration of the tank.
- * For massive fires, use unmanned hose holders or monitor nozzles; if this is impossible, leave the area and let the fire burn.
- * Be aware that when a BLEVE occurs, sections of the tank can fly in any direction. Just avoiding the ends of the tank should not be considered a safe operating procedure.

Fire departments should do the following:

- * Follow the OSHA regulations [29 CFR*1910.120 (q)] Emergency response to hazardous substance releases]. These regulations should be incorporated into fire department standard operating procedures (SOPs), which should be strictly enforced.
- * Train first responders to be aware of the hazards associated with propane tank fires, including BLEVE.

*CFR = Code of Federal Regulations

Material Safety Data Sheet

* Ensure that fire department code enforcement personnel adhere to the guidelines specified by the NFPA for the evaluation and certification of propane tanks.

* For more information about safe fire fighting procedures for propane tank fires, contact the NFPA, or the National Propane Gas Association (NPGA),

Propane tank owners and users should do the following:

1. Protect above ground external piping from physical damage with fencing or other protection.
2. Equip propane tank piping with excess-flow valves and emergency shutoff valves in accordance with the NFPA 58, LP-Gas Code.

NFPA Ratings: Health: 1 Fire: 4 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Containment Procedures

Stop leak if possible. Eliminate all sources of ignition. Prevent vapor from entering sewers, basements or confined areas.

Clean-Up Procedures

Evacuate all personnel and remain upwind of leak.

Evacuation Procedures

Evacuate the area promptly. Keep upwind of the spilled material and isolate exposure.

Special Procedures

Wear appropriate personal protection equipment.

*** Section 7 - Handling and Storage ***

Handling Procedures

Avoid high temperatures that may elevate component pressure above container rating. Do not get into eyes; prevent contact with skin and clothing. Do not breathe dust. If product is placed in solution, take precautions to avoid breathing mists. When using, do not eat, drink, or smoke. Remove all contaminated clothing and wash before reuse. Wash thoroughly after handling.

Storage Procedures

Under normal conditions of storage and use of this product will not constitute a health hazard. However if released, being heavier than air, this product may collect in any confined space and may reach concentrations presenting an asphyxiation or safety hazard and may be ignited by pilot lights, other flames, sparks, heaters electric motors, static discharge, or other sources of ignition.

Direct contact of the skin with this product may cause frostbite or cold burns and containers may present a similar hazard when gas is being withdrawn, due to the cooling effect. Handling precautions should be strictly observed.

If a tank fire occurs, the potential always exists for an explosion known as boiling liquid expanding vapor explosion (BLEVE). To reduce this risk, fire departments, fire fighters, and tank owners and users should follow the recommendations below.

This product is stored under pressure at ambient temperatures or as a refrigerated liquid. The design of pressure vessels, fuel systems, safety devices and operating procedures must comply with recognized codes of good practice. Small containers e.g. cylinders of approved design, properly sealed and in good condition, should be stored outdoors or in well ventilated storerooms, at no lower than ground level and must be quickly removable in an emergency. Eliminate all sources of ignition from the storage area.

Instruct personnel handling this product in potential hazards and precautions, and train them in safe handling and emergency procedures.

Material Safety Data Sheet

Reference Documents:

National Fire Protection Association Pamphlets 58 and 30B are essential reference documents related to the safe use, handling, and storage of this product.

NFPA 30B: Code for the Manufacture and Storage of Aerosol Products

NFPA 30B provides the necessary measures for the safe manufacture, storage, and display of aerosol products. NFPA 30B should be consulted for the specific requirements for the use of this product as a component in the manufacture of aerosol products. This code should also be consulted for general safety principles applicable to any industrial use of this product.

NFPA 30B recommends that the area in which aerosol cans are filled with this product (the "filling area") to be separated from the rest of the manufacturing facility by at least five feet or by non-communicating walls. NFPA 30B recommends that the filling area feature a damage limiting construction. NFPA 30B recommends that the filling area contain a gas detection system, explosion proof equipment, a ventilation system, and an automatic fire suppression system. All of these measures are designed this product from reaching a source of ignition.

NFPA 30B contains numerous recommendations and many provisions which cannot be listed fully here. Please consult NFPA 30B to determine whether your manufacturing facility is properly engineered and constructed.

NFPA 58: Liquefied Petroleum Gas Code

NFPA 58 applies to the storage, handling, transportation, and use of LP-Gases. LP-Gas This code should be consulted for the necessary requirements for the safe storage, handling and transportation of this product.

Special Precautions

Take precautionary measures against static discharge. Keep all connections for filling/emptying securely closed when not in use. Ensure that only containers/equipment of suitable pressure rating are used. Ensure that the permissible filling ratio for the product is not exceeded. Considerations for proper ventilation, explosion proof equipment, leak detection and explosion suppression requirements should be explored through a review of NFPA 30B and 58.

***** Section 8 - Exposure Controls / Personal Protection *****

A: Component Exposure Limits

ACGIH, OSHA, and NIOSH have not developed exposure limits for any of this product's components.

Engineering Controls

Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear chemical goggles.

Personal Protective Equipment: Skin

Use impervious gloves.

Personal Protective Equipment: Respiratory

Under normal conditions, respirator is not normally required.

Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended.

***** Section 9 - Physical & Chemical Properties *****

Material Safety Data Sheet

Appearance: Clear
Physical State: Gas
Vapor Pressure: 17 (psig @ 70°)
Boiling Point: -11.95°F @ 1 ATM
Solubility (H2O): Slight
Evaporation Rate: ND
Octanol/H2O Coeff.: ND
Flash Point Method: Closed Cup

Lower Flammability Limit (LFL): 1.8
Auto Ignition: ND

Odor: None
pH: NA
Vapor Density: 1.7237
Melting Point: Gas
Specific Gravity: 0.5481
VOC: 100%
Flash Point: -132.23° F
Upper Flammability Limit (UFL): 9.5
Burning Rate: ND

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

This is a stable material.

Chemical Stability: Conditions to Avoid

Ignition sources. High temperatures.

Incompatibility

Do not expose to strong oxidizing agents.

Hazardous Decomposition

Not Determined

Possibility of Hazardous Reactions

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Dose Effects

Component Analysis - LD50/LC50

No LD50/LC50's are available for this product's components.

Carcinogenicity

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

*** Section 12 - Ecological Information ***

Ecotoxicity

Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

All wastes must be handled in accordance with local, state and federal regulations.

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Liquefied Petroleum Gas

UN/NA #: 1075 **Hazard Class:** 2.1

Material Safety Data Sheet

*** Section 15 - Regulatory Information ***

US Federal Regulations

Component Analysis

None of this product's components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

State Regulations

Component Analysis - State

None of this product's components are listed on the state lists from CA, MA, MN, NJ, PA, or RI.

Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

Additional Regulatory Information

A: General Product Information

GRAS List:

The components of our propellants (propane, isobutane and normal butane) are listed on the **Generally Recognized As Safe (GRAS)** List, Part 184, Sub-Part B, Sec. 184.1165 and 184.1655 (Code of Federal Regulations).

STATEMENT OF BIODEGRADABILITY

The degradation of the NGL propellants does not take place by way of biological organisms. These are gases at atmospheric pressure and ambient temperature and their atmospheric life is measured in a matter of days. The degradation of the NGL propellants is accomplished **via photolysis**.

B: Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Petroleum gases, liquefied, sweetened	68476-86-8	Yes	DSL	EINECS

*** Section 16 - Other Information ***

Other Information

THE INFORMATION RELATES TO THIS SPECIFIC MATERIAL. IT MAY NOT BE VALID FOR THIS MATERIAL IF USED IN COMBINATION WITH ANY OTHER MATERIALS OR IN ANY PROCESS. IT IS THE USER'S RESPONSIBILITY TO SATISFY ONESELF AS TO THE SUITABILITY AND COMPLETENESS OF THIS INFORMATION FOR ONE'S OWN PARTICULAR USE.

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.