

INGESTION: Not expected to be a hazard.

Chronic Effects:

Gross overexposure to pentane may cause nerve damage.

Additional Medical and Toxicological Information:

Isobutane and n-butane have been shown to cause mild cardiac sensitization in laboratory test animals.

4. FIRST AID MEASURES

Eye Contact: Flush area with tepid water. Do not use hot water. Do not rub affected area. If frostbite has occurred, get medical attention.

Skin Contact: Flush with tepid water for at least 15 minutes. Get medical attention.

Inhalation: Remove to fresh air. If breathing has stopped, apply artificial respiration. Get medical attention.

Ingestion: None considered necessary.

5. FIRE FIGHTING MEASURES

Flash Point: -60 °C (-76 °F)

Flammable Limits in Air, % by Volume:

Lower: 1.9

Upper: 8.4

Autoignition Temperature: 405°F

Extinguishing Media: Dry chemical, foam, carbon dioxide.

NFPA Ratings: Health 1

Flammability: 4

Reactivity: 0

General Hazard:

Vapors may flow on surface for considerable distance, reach an ignition source, and flash back. It can be a dangerous fire and explosion hazard when mixed with air. Continue cooling containers with water well after fire has been extinguished.

Fire Fighting Instructions:

Water may be ineffective on flames but should be used to keep fire-exposed containers cool. Do not completely extinguish flame unless gas flow is shut off or an explosive gas-air mixture may form and ignite without warning. Firefighters should wear self-contained breathing apparatus and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Remove source of heat or ignition including internal combustion engines and power tools. Stop gas flow. Keep people away. Stay upwind and warn people downwind of possible explosion. Wear self-contained breathing apparatus if condition warrants

7. HANDLING & STORAGE

SAFE HANDLING:

1. Consult a safety professional to assist in safe site-specific handling of gas cylinders.

2. Store in accordance with National Fire Protection Association recommendations.
3. Cylinders should be transported with a suitable hand-truck. Do not drag, slide, or roll cylinders.
4. Keep the valve protection cap (where provided) tightly secured until the cylinder is ready for use.
5. Use designated CGQ fittings and other support equipment (threaded: for gas withdrawal CGA 510, liquid withdrawal CGA 555).
6. Leak check system with leak detection solution, never with flame.
7. Immediately contact the supplier if there are any difficulties associated with operating the cylinder valve.
8. Use an adjustable strap wrench to remove overly tight or rusted caps.

IMPROPER HANDLING:

1. Never tamper with pressure relief devices in valves and cylinders.
2. Do not heat cylinder to increase the discharge rate of the product from the cylinder.
3. Do not use oils or grease on gas-handling fittings or equipment.
4. Do not "crack" valve open before connecting it, since self-ignition may occur.
5. Never strike an arc on a compressed gas cylinder or cylinder part of an electric circuit.

SAFE STORAGE:

1. Store in accordance with National Fire Protection Association recommendations listed in NFPA 58.
2. Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. The storage area should be clear of materials that can burn.
3. The temperature where cylinders are stored should not exceed 52 deg. C (125 deg. F).
4. Cylinders should be stored upright with valve-protection cap in place and firmly secured to prevent falling or being knocked over.
5. Cylinders stored in the open should be protected against extremes of weather and from the dampness of the ground to prevent rusting.
6. Containers should be stored away from heavy traffic areas and emergency exits. Containers should be stored away from process and production areas, from elevators, building and room exits, or main aisles leading to exits.
7. Flammable gas cylinders should be separated from oxygen cylinders, or other oxidizers, by minimum distance of 20 ft., or by a barrier of non-combustible material at least 5 ft. high, having a fire-resistance rating of at least 30 minutes.
8. Storage areas must meet national electrical codes for class 1 hazardous areas. "No smoking or open flames" signs need to be displayed in storage or use areas.
9. Installation of leak detection and alarm for storage and use areas should be considered.
10. Appropriate extinguishing equipment needs to be in the storage area (i.e., sprinkler system, portable fire extinguishers).
11. Store the smallest amount of flammable gas on-site as is necessary. Full and empty cylinders should be segregated. To prevent containers from being stored for long periods of time, use a first-in, first-out inventory system.
12. Explosion-proof equipment, non-sparking ventilation systems, and appropriate electrical systems should be used. Electrical equipment used in gas-handling operations or located in storage areas should be non-sparking or explosion proof.
13. Use a check valve in the discharge line to prevent hazardous backflow.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Eye Protection: Wear chemical safety glasses, safety goggles or face shield where contact with liquid butane may occur.

Skin Protection: Wear insulating gloves and protective clothing when contact with liquid butane

Inhalation: may occur.
Use approved respiratory protective equipment for cleaning large spills or entry into tanks, vessels or other designated confined spaces or in any situation where airborne concentrations may exceed occupational exposure limits.

Ventilation: Provide adequate general and local ventilation: (1) to maintain airborne chemical concentrations below applicable exposure limits, (2) to prevent accumulation of flammable vapors and formation of explosive atmospheres, and (3) to prevent formation of oxygen deficient atmospheres [Note: this product may displace oxygen in enclosed

9. PHYSICAL & CHEMICAL PROPERTIES

Boiling Point: -1 °C (31 °F) @ 1 atm	Melting Point: -138 °C (-217 °F)
Vapor Pressure: 2 atm	Vapor Density (Air=1): 2.07
% Solubility in H ₂ O: Slightly Soluble	pH: N/A
Specific Gravity: 0.6, Liquid @ -1 °C (31 °F)	Evaporation Rate: N/A
% Volatile by Volume: 100	Viscosity: N/A
Appearance: Colorless Gas	Odor: Faint, disagreeable, gasoline-like

10. STABILITY & REACTIVITY

Stability: Stable under normal conditions of use.

Hazardous Polymerization: Will not occur.

Conditions to Avoid/Incompatibilities: Nickel carbonyl, strong oxidizing agents, heat, sparks, flame and build up of static electricity.

Hazardous Decomposition Products: CO, CO₂

11. TOXICOLOGICAL INFORMATION

No data available.

12. ECOLOGICAL INFORMATION

No data available.

13. DISPOSAL CONSIDERATIONS

This product is not a "listed" hazardous waste. But when disposed of in containers may meet the criteria of being an "ignitable" waste. It is the responsibility of the user to determine if the material disposed of meets federal, state, or local criteria to be defined as a hazardous waste.

14. TRANSPORT INFORMATION

Liquefied Petroleum Gas, 2.1, UN 1075.

15. REGULATORY INFORMATION

EPA SARA TITLE III

Section 302 EPCRA Extremely Hazardous Substances (EHS)

Product Component	CAS No.	Wt%	RQ, lb	TPQ, lb
None				

Section 304 CERCLA Hazardous Substances

Product Component	CAS No.	Wt%	RQ, lb
None			

Section 311/312 Hazard Categorization

Acute:	Chronic:	Fire:	Pressure:	Reactive:
X		X	X	

Section 313 EPCRA Toxic Substances

Product Component	CAS No.	Wt. %
None		

Key: RQ = Reportable Quantity
TPQ = Threshold Planning Quantity of EHS

CALIFORNIA PROPOSITION 65 WARNING

Chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm may be found in crude oil and petroleum products. Although it is possible to sufficiently refine a crude oil or its end products to remove the potential for cancer, we are advising that one or more of the listed chemicals may be present in some detectable quantities. Read and follow directions and use care when handling crude oil and petroleum products.

16. OTHER INFORMATION

THIS INFORMATION RELATES ONLY TO THE SPECIFIC MATERIAL DESIGNATED AND MAY NOT BE VALID FOR SUCH MATERIAL USED IN COMBINATION WITH ANY OTHER MATERIALS OR IN ANY PROCESS. SUCH INFORMATION IS TO THE BEST OF THIS COMPANY'S KNOWLEDGE AND BELIEVED ACCURATE AND RELIABLE AS OF THE DATE INDICATED. HOWEVER, NO REPRESENTATION, WARRANTY OR GUARANTEE IS MADE AS TO THE ACCURACY, RELIABILITY OR COMPLETENESS. IT IS THE USER'S RESPONSIBILITY TO SATISFY THEMSELVES AS TO THE SUITABILITY AND COMPLETENESS OF SUCH INFORMATION FOR THEIR OWN PARTICULAR USE.

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