



MATERIAL SAFETY DATA SHEET

MSDS # 63-F4

BUTANE LPG

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: Butane

APPLICATIONS: Fuel

SYNONYMS: Methylethylmethane, Butyl Hydride

CAS REGISTRY #: 106-97-8

CHEMICAL FAMILY: Alkanes

EMERGENCY PHONE: CHEMTREC – (800) 424-9300 or (703) 527-3887 (collect)

SUPPLIER: Sinclair Oil Corporation
P.O. Box 30825
Salt Lake City, Utah 84130

TELEPHONE / FAX: (888) 340-3466 / (801) 524-2740

2. COMPOSITION, INFORMATION ON INGREDIENTS

| COMPONENTS: | CAS# | Typical wt.% |
|-------------|----------|--------------|
| Butane | 106-97-8 | 100 |

3. HAZARDS IDENTIFICATION

APPEARANCE: Clear

PHYSICAL STATE: Flammable Liquid and Gas under pressure

ODOR: Natural Gas odor

EMERGENCY OVERVIEW: Flammable liquid and gas under pressure. Can form explosive mixtures with air. May cause frostbite. Can cause rapid suffocation. May cause dizziness and drowsiness. Self-contained breathing apparatus may be required by rescue workers.

POTENTIAL HEALTH EFFECTS:

INHALATION: Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headaches, drowsiness, dizziness, excitation, excess salivation, vomiting and unconsciousness. Lack of oxygen can kill.

EYE CONTACT: Liquid may cause frostbite.

SKIN CONTACT: Liquid may cause frostbite.

INGESTION: Not expected, this product is a gas

4. FIRST AID MEASURES

INHALATION: If inhaled, remove to fresh air. Get medical attention if breathing becomes difficult or respiratory irritation persists. Give oxygen.

EYE CONTACT: For contact with the liquid, flush immediately with warm water for at least 15 minutes. Seek medical attention.

SKIN CONTACT: For Exposure to liquid, IMMEDIATELY WARM FROSTBITE AREA WITH WARM WATER. Remove contaminated clothing. Call a physician.

INGESTION:NA

5. FIRE FIGHTING MEASURES

FLASH POINT (°F): -76°F

FLAMMABLE LIMITS: LEL – 1.8% UEL – 8.5%

AUTOIGNITION TEMPERATURE: 761°F

FLAMMABILITY CLASSIFICATION: Flammable Gas

GENERAL HAZARD: Incomplete burning can produce carbon monoxide. Vapors are heavier than air and may travel considerable distance to source of ignition and flashback. Stay away from ends of storage tanks. Prevent runoff from fire control dilution from entering streams or drinking water supplies. Extremely flammable. Will vaporize violently if depressured. Flame contact with the storage vessel above the liquid level could result in a Boiling Liquid Expanding Vapor Explosion (BLEVE). Consult the NFPA for BLEVE precautions.

FIRE FIGHTING INSTRUCTIONS: Stop flow of gas. For fires involving flammable gases, the best procedure is to stop the flow of gas before attempting extinguishment of the fire. To extinguish the fire, while allowing continued flow of gas, is extremely dangerous; an explosive cloud of gas/air mixture may be created that, if ignited, may cause far more damage than the original fire. Extinguishing the flame using carbon dioxide or dry chemical may be desirable to allow immediate access to valves to shut off the flow of gas, but this must be done carefully. In many cases, it will be preferable to allow continued burning, while protecting exposures with water spray, until the flow of gas can be stopped.

FIRE FIGHTING EQUIPMENT: HAZARDOUS COMBUSTION PRODUCTS: Use of SCBA in enclosed or confined spaces, or as other wise needed (Bunker gear).

Hazardous Decomposition Products: May produce carbon monoxide

6. ACCIDENTAL RELEASE MEASURES

Shut off ignition sources; no flames, smoking or flares in hazard area. Do not touch spilled material; stop leaks if you can do it without risk. Use water spray to reduce vapors; isolate area until gas has disappeared. Report spills to appropriate authorities. Dispose of in accordance with Federal, State and Local regulations.

7. HANDLING AND STORAGE

HANDLING / STORAGE: Ground and bond all transfer and storage equipment. Must be handled and stored under pressure to maintain liquid form. Consult NFPA and OSHA for safe storage and handling requirements. Use non-sparking tools and equipment. Avoid ignition sources. Avoid contact with eyes, skin or clothing. Avoid breathing the vapor.

8. EXPOSURE CONTROLS, RESPIRATORY & PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide ventilation sufficient to prevent exceeding recommended exposure limit or build-up of explosive concentrations of vapor in air. Use explosion-proof equipment.

PERSONAL PROTECTION:

PROTECTIVE CLOTHING: Full face shield and chemical goggles. Impervious gloves, boots, and whole body protection.

RESPIRATOR: Airborne concentrations should be kept to lowest levels possible. If vapor, mist or dust is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH or MSHA approved air purifying or air-supplied respirator after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown.

OCUPATIONAL EXPOSURE LIMITS

| COMPONENT | LIMIT | TWA | STEL | CEILING | NOTATION | OTHER |
|-----------|-------|---------|------|---------|----------|-------|
| Butane | ACGIH | 800 ppm | | | | |

A1= Confirmed Human Carcinogen

A3= Confirmed Animal Carcinogen with Unknown Relevance to Humans

A4= Not Classified as a Human Carcinogen

CNS= Central Nervous System

Skin= Absorption through the skin may contribute to overall exposure

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE: Gas or Liquid under pressure

COLOR: colorless

DENSITY/SPECIFIC GRAVITY (g/ml): 0.5

VAPOR DENSITY (air=1): >1

VAPOR PRESSURE: 30-150 PSIA

BOILING POINT/RANGE: 20 = 30 °F

SOLUBILITY IN WATER: No

VISCOSITY: NA

pH : NA

FREEZING POINT: NA

10. STABILITY AND REACTIVITY

GENERAL: This product is stable

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID: Strong oxidizers, alkalis, Nickel Carbonyl and oxygen. Explodes at elevated temperatures 815 °F. Avoid heat sparks, flame, rapid depressurization, body contact.

HAZARDOUS DECOMPOSITION: Incomplete burning can produce carbon monoxide.

11. TOXICOLOGICAL INFORMATION

SYSTEMIC:

ACUTE:

Inhalation: High concentrations may cause asphyxiation by displacement of oxygen.

Ingestion: NA

Eye: Contact with liquid may cause frostbite

Skin: Contact with liquid may cause frostbite

CHRONIC: No data available to indicate the product or its components present a chronic health hazard

12. DISPOSAL INFORMATION

RCRA: Dispose of this product in accordance with local and/or national regulations.

EPA Hazard Class: Acute Hazard/Fire Hazard/Sudden Release of Pressure Hazard

Dispose of in accordance with Federal, State, and Local regulations.

13. TRANSPORT INFORMATION

DOT (Department of Transportation): May also be shipped as "Liquified Petroleum Gas"

PROPER SHIPPING NAME: Butane

HAZARD CLASS: 2.1

IDENTIFICATION NUMBER: UN 1011

NAERG96 NUMBER: 115

14. REGULATORY INFORMATION

CERCLA (Comprehensive Environmental Response Compensation and Liability Act): NA

SARA TITLE III (Superfund Amendments and Reauthorization Act): Butane is subject to SARA Title III, Sections 311 and 312, which require MSDS reporting and Hazardous Chemical Inventory reporting.

15. OTHER INFORMATION

NFPA 704/HMIS:

Health – 1 Flammability – 4 Reactivity – 0
(0 = insignificant, 1 = slight, 2 = moderate, 3 = high, 4 = extreme)

REVISION SUMMARY:

Complete review of MSDS, December 2005.

THIS PRODUCT MATERIAL SAFETY DATA SHEET PROVIDES HEALTH AND SAFETY INFORMATION. THE PRODUCT SHOULD BE USED IN APPLICATIONS CONSISTENT WITH THIS PRODUCT LITERATURE. FOR ANY OTHER USES, EXPOSURES SHOULD BE EVALUATED SO THAT APPROPRIATE HANDLING PRACTICES AND TRAINING PROGRAMS CAN BE ESTABLISHED TO ENSURE SAFE WORKPLACE OPERATIONS.

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DATE: December 2005