
	Material Safety Data Sheet (MSDS) <i>According to the Directives 91/155/CEE-2001/58/CE-ISO 11014-1</i>	Page: 1 of 8 Revision Number: 1
	Product Name: <p style="text-align: center;">Butane</p>	
		Reactivity Flammability Health

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

Identification of the substance or preparation:

Alkanes (hydrocarbon) ,Aliphatic Hydrocarbon
 Molecular Weight: 58.12
 Formula: C₄H₁₀

CAS Number:
Synonyms:

106-97-8
 Methyl ethyl methane, Diethyl, LP-Gas, Liquefied Petroleum Gas, (LPG), n-Butane, Butyl Hydride.

Manufacturer subcontractor:

None

Association/Organization:
Use of the substance/Preparation:

None
 None

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous substances:

Flammable liquid gas under pressure. Can form explosive mixtures with air. Can rapid suffocation.
 Liquid may cause freeze burn similar to frostbite.

Hazardous label(s):
Toxicological characteristics:

Liquefied gas. Extremely flammable
 May be harmful if inhaled. Asphyxiant at high concentration.
 CHS has not conducted specific toxicity tests on this product.

Substances present at a concentration below the minimum danger:

Butane may contain various percentages of these hazardous components, depending on the source of supply.

Other component:



3. IDENTIFICATION OF HAZARDS

Risk phrases:

Flammable liquid gas under pressure. Can form explosive mixtures with air. Can rapid suffocation.
 Liquid may cause freeze burn similar to frostbite.

Skin contact:

Direct contact with liquid butane can result in skin burns (frostbite).

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Eye contact:

Inhalation :

If swallowed:

Other information:

This material is a gas under normal atmospheric conditions thus no harmful effects from skin absorption are expected. Contact with liquid can cause momentary freezing followed by swelling and eye damage. High concentrations in confined spaces may limit oxygen available for breathing. This material is a gas under normal atmospheric conditions and ingestion not expected to occur in normal use.
None

4. FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor
NEVER induce swallowing in an unconscious person.

Skin contact :

Direct contact with liquid butane can result in skin burns (frostbite).

This material is a gas under normal atmospheric conditions thus no harmful effects from skin absorption are expected.

In case of exposure by inhalation:

Person suffering from lack of oxygen should be removed to fresh air. If victim is not breathing, apply artificial respiration. Keep victim warm and get medical attention.

In case of splashes or contact with eyes:

Contact with liquid can cause freezing of tissue, flush thoroughly with lukewarm water for 15 minutes, occasionally lifting the upper and lower lids, until no evidence of chemical remaining. Get medical attention immediately.

In case of swallowing:

If swallowed, get immediate medical attention.

Note of physician:

5. FIRE FIGHTING MEASURES

Flammable class:



Flash point : -60° C

Autoignition: 405° C

UEL: 1.8 LEL: 8.5

Suitable extinguishing media:

Use dry chemical , co2 , water spray or fog for surrounding area .Do not extinguish gas fire unless the gas leak can be stopped . Use dry chemical or co2 for small fire. For large fire use water spray or fog, if there is no risk, move containers from fire area.

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Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases:

Butane is easily ignited. It is heavier than air therefore can collect in low and confined areas, where there is an ignition source .Due to heat , pressure in a container can built up and container may rupture/explode if pressure relief devices should fail to function. Propane released from a properly functioning relief valve on an overheated container can also became ignited. Hazard combustion products are not produced. Incomplete combustion may form carbon monoxide. In confined space use self contained breathing apparatus Prevent from entering sewers, basement and work pits, or any place where its accumulation can be dangerous.

Special protective equipment for fire fighting :
Other information:



6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Evacuate immediate area.
Environmental precautions:	Eliminate any possible sources and provide maximum ventilation. Shut off source of propane, if possible.
Methods for cleaning up and disposal:	Ventilate area safely.
Other information:	If leaking from container, or valve, contact your supplier.

7. HANDLING AND STORAGE

The regulations relating to storage premises apply to workshop where the product is handled:

Handling: Valve protection caps must remain in place unless container is secured .Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure piping or systems .Do not heat cylinder to increase discharge rate of product from the cylinder . Use a check valve or trap in the discharge line to prevent hazardous back flow in the cylinder

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Storage:

Cylinder should be separated from oxygen cylinders or other oxidizers by distance of 6 meters or by barrier of noncombustible materials at least 1.5 meters high having a fire resistance rating of at least half an hour. Full and empty cylinder should be segregated. Empty cylinder retains some residue and should be treated as if they were full. Use at first -in , first -out inventory system to prevent from full containers being stored for long periods of time
 Use only in well ventilated area.

Other information :

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit values:

Butane : ACGIH – TWA/TLV 800 ppm
 Ensure adequate ventilation. Do not smoke while handling procedure

Exposure controls:

Personal protective equipment:

Personal should never enter an area of high concentration without proper respiratory protection. Use a NIOSH approved self- contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode in oxygen deficient environments or exposure concentration is unknown or if immediately dangerous life or health (IDLH) exist.

Eye protection:

A respiratory protection program that meets OSHA, s 29CFR1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respiratory, s use.

Respiratory protection:

Use face shield or chemical type goggles where contact with material may occur such as when changing valves hose ,etc. Positive pressure air line with mask or self contained breathing apparatus should be available for emergency use.

Hand protection:



Use gloves when contact with liquid Butane is possible.

Skin and body protection:

Use protective clothing, face shield, and gloves when contact with liquid Butane is possible.

Health measures:

Local exhaust ventilation is necessary to prevent accumulation above the TWA.

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Environmental exposure controls:

Use safety shoes, safety shower.
 Exposure to containing more than 10% may cause dizziness. Exposure to atmospheres containing 8%-10% or less oxygen will bring about unconsciousness without warning, and so quickly that individuals cannot help or protect themselves. Lack of sufficient oxygen may cause serious injury or death.

9. PHYSICAL AND CHEMICAL PROPERTIES

General information:

Appearance (at 20°C):

Extremely flammable gas.

A colourless and tasteless gas at normal temperature. An odorant (ethyl mercaptan) has been added to provide a strong unpleasant odour. Should Butane – air mixture reach the ethyl mercaptan concentration will be approximately 0.5 ppm in air.

Colour:

Colorless

Odour:

Unodorised Butane has a slightly sweet odour. If an odorant has been added it will have a strong unpleasant odour.

PH (at 20°C):

Not applicable.

Boiling point/range (°C):

-0.5°C @ 1 atm

Flash point (°C):

-60°C

Flammability:

1.5% -8.5%

Auto-ignition temperature:

450°C

Explosive properties:

Can form explosive mixtures with air.

Oxidising properties:

N/A

Vapour pressure (at 20°C):

2 bar (at:20 °C)

Density (at 20°C):

liquid(Water=1) 0.57 at (21°C ,1 atm)
 vapour(air=1) 2.11

Solubility (at 20°C):

water solubility: Negligible

Viscosity (40°C):



.0074 c.p.

Evaporation rate:

N/A

Other information:

Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level.

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10. STABILITY AND REACTIVITY



Stability:	Stable
Conditions to avoid:	Heat, flames, sparks Nickel carbonyl and other sources of ignition.
Material to avoid:	Avoid contact with incompatible materials, strong acids, Oxidizing agent such as chlorine (gas or liquid) and oxygen.
Hazardous decomposition products:	Under fire condition, can yield carbon monoxide, carbon dioxide, fume, smoke, aldehydes and other decomposition products.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:	IHL- RAT LC 50: 658 g/m ³ /4h IHL- MUS LC 50 :658 g/m ³ /2h
Sub chronic – chronic toxicity:	Asphyxiant at high concentration. High concentrations in confined spaces may limit oxygen available for breathing.
Sensibilization:	None
Carcinogenicity:	This material has not been identified as a Carcinogen by NTP, IARC, or OSHA.
Reproductive effects:	None
Human experience:	None
Other information:	Butane is non-toxic and is a simple asphyxiant, however it dose have slight anesthetic properties and higher concentration may cause a narcotic effect and dizziness.

12. ECOLOGICAL INFORMATION

Ecotoxicity:	No known ecological damage caused by this product.
Bio accumulative potential:	This product dose not contains any class 1 or 2 ozone depleting substances.
Mobility:	None
Persistence and degradability:	None
Other adverse effects:	No adverse ecological effects expected. The components of this mixture are not listed as marine pollutants by TDG regulations.

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13. DISPOSAL CONSIDERATIONS

Disposal of product:

Do not attempt to dispose of residual or unused quantities. Return the cylinder to supplier. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Do not discharge into any place where its accumulation could be dangerous.

Disposal of packaging:

Butane containers are special cylinder, and can be reused. Butane is non corrosive and may be used with any common structural material.

14. TRANSPORT INFORMATION

Land transport:

Container should be transported in a secure, upright position in a well ventilated vehicle.

Hazard class:2.1

UN NO:1978

DOT shipping name : Butane

DOT shipping label: Flammable Gas

Classification above.

ADR/RID:

Maritime transport:

Classification above

Air transport:

No classification assigned.

15. REGULATORY INFORMATION

Hazardous label(s):

Class: 2.1

Safety phrases:

S 9 , S 16 , S 33

Risk phrases:

R 12

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16. OTHER INFORMATION



The contents and format of this MSDS are in accordance with EEC Commission Directive 2001/58/EC

Disclaimer of liability:

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