

SAFETY DATA SHEET

BUTANE

000003000658



Version 3.0

Revision Date 2016/08/10

Print Date 2016/08/10

SECTION 1. IDENTIFICATION

Product name : BUTANE

Synonyms : Butane, Field grade butane, Butane commercial, Refinery grade butane, Normal butane, NC4, Isobutane, IC4

Product code : 100179, 100096, 100121, 100095, 102361

Manufacturer or supplier's details
SUNCOR ENERGY INC.
P.O. Box 2844, 150 - 6th Avenue South-West
Calgary Alberta T2P 3E3
Canada

Emergency telephone number : Suncor Energy: +1 403-296-3000;
Poison Control Centre: Consult local telephone directory for emergency number(s).

Recommended use of the chemical and restrictions on use

Recommended use : Butane is used as a raw material for liquid fuels and organic synthesis. It is also used as a refrigerant and a propellant for aerosols. The grade determines the butane content. It is supplied as pressurized liquid in tanks and cylinders.

Prepared by : Product Safety: +1 905-804-4752

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Liquefied compressed gas.
Colour	colourless
Odour	Odourless gas in natural state at any concentration.

GHS Classification

Flammable gases : Category 1

Gases under pressure : Liquefied gas

Specific target organ toxicity - single exposure : Category 3 (Central nervous system)

Simple Asphyxiant : Category 1

GHS label elements

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Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	Extremely flammable gas. Contains gas under pressure; may explode if heated. May cause drowsiness or dizziness. May displace oxygen and cause rapid suffocation.
Precautionary statements	:	Prevention: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Use only outdoors or in a well-ventilated area. Response: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources. Storage: Store in a well-ventilated place. Keep container tightly closed. Store locked up. Protect from sunlight. Store in a well-ventilated place. Disposal: Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects

Primary Routes of Entry	:	Eye contact Inhalation Skin contact
Inhalation	:	Inhalation may cause central nervous system effects. Inhalation of vapours may cause drowsiness, headache, dizziness, and disorientation. May cause respiratory tract irritation.
Skin	:	Contact with rapidly expanding gas may cause burns or frost-bite.
Eyes	:	Contact with rapidly expanding gas may cause burns or frost-bite.
Ingestion	:	Not applicable to gases.
Aggravated Medical Condition	:	None known.

Other hazards

None known.

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IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration
butane	106-97-8	> 95 %
isobutane	75-28-5	> 95 %
propane	74-98-6	< 5 %
isopentane	78-78-4	< 2 %

SECTION 4. FIRST AID MEASURES

- If inhaled : Move to fresh air.
Artificial respiration and/or oxygen may be necessary.
Seek medical advice.
- In case of skin contact : In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it.
Wash contaminated clothing before reuse.
Seek medical advice.
- In case of eye contact : Remove contact lenses.
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Obtain medical attention.
- If swallowed : Inhalation is greater hazard and first aid measures for this route of exposure should be considered first.
- Most important symptoms and effects, both acute and delayed : First aider needs to protect himself.

SECTION 5. FIREFIGHTING MEASURES

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| Suitable extinguishing media | : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable extinguishing media | : No information available. |
| Specific hazards during fire-fighting | : Cool closed containers exposed to fire with water spray. If the product release cannot be shut off safely, allow the product to burn itself out. |
| Hazardous combustion products | : Carbon oxides (CO, CO ₂), smoke and irritating vapours as products of incomplete combustion. |
| Further information | : Prevent fire extinguishing water from contaminating surface water or the ground water system. |
| Special protective equipment for firefighters | : Wear self-contained breathing apparatus and full protective wear.
Wear a positive-pressure supplied-air respirator with full face-piece. |

SECTION 6. ACCIDENTAL RELEASE MEASURES

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| Personal precautions, protective equipment and emergency procedures | : Use personal protective equipment.
Ensure adequate ventilation.
Evacuate personnel to safe areas. |
| Environmental precautions | : Do not allow uncontrolled discharge of product into the environment. |
| Methods and materials for containment and cleaning up | : Prevent further leakage or spillage if safe to do so.
Remove all sources of ignition.
Non-sparking tools should be used.
Ensure adequate ventilation.
Contact the proper local authorities. |

SECTION 7. HANDLING AND STORAGE

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| Advice on safe handling | : For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity.
Keep away from open flames, hot surfaces and sources of ignition.
Do not use sparking tools.
Do not enter areas where used or stored until adequately ventilated.
Avoid contact with skin, eyes and clothing.
Avoid breathing gas.
Use only with adequate ventilation. |
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- Conditions for safe storage : Store in original container.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep in a dry, cool and well-ventilated place.
Keep in properly labelled containers.
To maintain product quality, do not store in heat or direct sunlight.
Keep away from sources of ignition - No smoking.
Ensure the storage containers are grounded/bonded.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
butane	106-97-8	TWA	1,000 ppm	CA AB OEL
		TWA	600 ppm	CA BC OEL
		STEL	750 ppm	CA BC OEL
propane	74-98-6	TWAEV	800 ppm 1,900 mg/m ³	CA QC OEL
		TWA	1,000 ppm	CA AB OEL
		TWA	1,000 ppm	CA BC OEL
isopentane	78-78-4	TWAEV	1,000 ppm 1,800 mg/m ³	CA QC OEL
		TWA	600 ppm	CA AB OEL
		TWA	1,770 mg/m ³	CA AB OEL

- Engineering measures** : Use only in well-ventilated areas.
Adequate ventilation to ensure that Occupational Exposure Limits are not exceeded.
Use explosion-proof ventilation equipment.

Personal protective equipment

- Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.
Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

- Filter type : Always wear NIOSH-approved self-contained breathing apparatus when handling this material.

- Hand protection
Material : Wear insulated gloves to prevent frostbite.

- Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

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Eye protection	: Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Protective measures	: Wear suitable protective equipment.
Hygiene measures	: Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash face, hands and any exposed skin thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquefied compressed gas.
Colour	: colourless
Odour	: Odourless gas in natural state at any concentration.
Odour Threshold	: Odour is not an adequate warning to prevent overexposure to butane. Prolonged exposure to mercaptans can cause olfactory desensitization.
pH	: No data available
Pour point	: No data available
Boiling point/boiling range	: -0.5 °C (31.1 °F)
Flash point	: -60 °C (-76 °F) Method: closed cup
Fire Point	: No data available
Auto-Ignition Temperature	: 287 °C (549 °F)
Evaporation rate	: No data available
Flammability	: Extremely flammable in presence of open flames, sparks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. Rapid escape of vapour may generate static charge causing ignition. May accumulate in confined spaces.
Upper explosion limit	: 8.4 %(V)
Lower explosion limit	: 1.8 %(V)
Vapour pressure	: 1,856 mmHg (25 °C / 77 °F)
Relative vapour density	: 2 Air = 1

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Relative density	: 0.6 (20 °C / 68 °F)
	Water = 1
Solubility(ies)	
Water solubility	: Partially soluble in cold water.
Partition coefficient: n-octanol/water	: No data available
Viscosity	
Viscosity, kinematic	: No data available
Explosive properties	: Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Container explosion may occur under fire conditions or when heated. Vapour explosion hazard indoors, outdoors or in sewers. Vapours may form explosive mixtures with air.

SECTION 10. STABILITY AND REACTIVITY

Possibility of hazardous reactions	: Hazardous polymerisation does not occur. Stable under normal conditions.
Conditions to avoid	: Heat, flames and sparks.
Incompatible materials	: Reactive with oxidising agents and halogenated compounds.
Hazardous decomposition products	: May release COx, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact
Inhalation
Skin contact

Acute toxicity

Product:

Acute oral toxicity	: Remarks: No data available
Acute inhalation toxicity	: Remarks: No data available
Acute dermal toxicity	: Remarks: No data available

Components:

butane:

Acute inhalation toxicity	: LC50 (Rat): 658 mg/l Exposure time: 4 h Test atmosphere: gas
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isobutane:

Acute inhalation toxicity : LC50 (Rat): 658,000 mg/m³
Exposure time: 4 h
Test atmosphere: gas

isopentane:

Acute inhalation toxicity : LC50 (Rat): 280 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Skin corrosion/irritation

Product:

Remarks: No data available

Serious eye damage/eye irritation

Product:

Remarks: No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish :
Remarks: No data available

Toxicity to daphnia and other :
aquatic invertebrates Remarks: No data available

Toxicity to algae :

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Remarks: No data available

Toxicity to bacteria : Remarks: No data available

Persistence and degradability

Product:

Biodegradability : Remarks: No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Offer surplus and non-recyclable solutions to a licensed disposal company.
Waste must be classified and labelled prior to recycling or disposal.
Send to a licensed waste management company.
Dispose of as hazardous waste in compliance with local and national regulations.
Dispose of product residue in accordance with the instructions of the person responsible for waste disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No. : UN 1011
Proper shipping name : Butane
Class : 2.1
Packing group : Not assigned by regulation
Labels : Class 2 - Gases: Flammable (Division 2.1)
Packing instruction (cargo aircraft) : 200

IMDG-Code

UN number : UN 1011
Proper shipping name : BUTANE

Class : 2.1
Packing group : Not assigned by regulation

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Labels : 2.1
EmS Code : F-D, S-U
Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

National Regulations

TDG

UN number : UN 1011
Proper shipping name : BUTANE

Class : 2.1
Packing group : Not assigned by regulation
Labels : 2.1
ERG Code : 115
Marine pollutant : no

ISOBUTANE, UN1969, 2.1

SECTION 15. REGULATORY INFORMATION

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

The components of this product are reported in the following inventories:

DSL On the inventory, or in compliance with the inventory
TSCA All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

SECTION 16. OTHER INFORMATION

For Copy of SDS : Internet: www.petro-canada.ca/msds
Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228
For Product Safety Information: 1 905-804-4752

Prepared by : Product Safety: +1 905-804-4752

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.