



# MATERIAL SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**MSDS NUMBER:** 5106  
**MSDS DATE:** April 1, 2010  
**PRODUCT NAME:** BUTANE

**TRANSPORTATION EMERGENCIES:** CALL CANUTEC AT (613) 996-6666

**Ontario Regional Poison Information Center**  
1-800-267-1373 (Ottawa)  
1-800-268-9017 (Toronto)

**Quebec Poison Control Center**  
1-800-463-5060  
**New Brunswick Poison Information Center**  
(506) 857-5555  
**Newfoundland Poison Control Center**  
(709) 722-1110

**Nova Scotia / PEI Poison Control Center:**  
1-800-565-8161

**MSDS ASSISTANCE:** 1-888-871-4404

**SUPPLIER'S NAME/ADDRESS:**

ULTRAMAR LTD  
2200 McGill College  
Montreal, Quebec H3A 3L3  
(514) 499-6111

**CHEMICAL NAME:** Butane

**CAS NUMBER:** 106-97-8

**SYNONYMS/Common Names:** This Material Safety Data Sheet applies to the following product descriptions for Hazard Communication purposes only. Technical specifications vary greatly depending on the product and are not reflected in this document. Consult specification sheets for technical information.

**Butane**                      **Liquefied Petroleum Gases (LPG)**

## 2. COMPOSITION, INFORMATION ON INGREDIENTS

**PRODUCT USE:** This product is intended for use as a fuel in devices designed for combustion of butane, or for use in engineered processes. Use in other applications may result in a higher exposure and require additional controls, such as local exhaust ventilation and personal protective equipment.

Component or Material Name	%	CAS Number	ACGIH Limits			OSHA Exposure Limits			
			TLV	STEL	Units	PEL	STEL	C/P	Units
Isobutane	< 3	75-28-5	1000	NA	ppm	NA	NA	NA	NA
n-Pentane	< 1	109-66-0	600	NA	ppm	1000	NA	NA	ppm
Isopentane	< 3	78-78-4	600	NA	ppm	NA	NA	NA	NA
Butane	100	106-97-8	1000	NA	ppm	NA	NA	NA	ppm

Basis for LD <sub>50</sub> and LC <sub>50</sub> values	LD <sub>50</sub> value	Species & route	LC <sub>50</sub> Value	Species and route
Butane	NA		> 658,000 mg/m <sup>3</sup> /4 hr	Rat by inhalation

### 3. HAZARDS IDENTIFICATION

#### HEALTH HAZARD DATA:

- This product is hazardous through inhalation and skin contact exposure. The principle toxic action is simple asphyxiation by displacement of oxygen. Oxygen concentration should not fall below 19.5% at sea level. Particular attention should be given to oxygen displacement in poorly ventilated space.
- Straight chain hydrocarbons, such as this product, produce narcosis at high concentrations. Butane exhibits some degree of anaesthetic action and is mildly irritating to mucous membranes. Dizziness may be produced by a 10 minute exposure to 10,000ppm (1% V/V). At concentrations near those that induce asphyxiation, symptoms such as rapid respiration, ataxia, rapid fatigue, nausea, vomiting, convulsions, loss of consciousness, followed by deep coma may occur. Under intended use, hazardous exposures are not expected.

**HAZARDS OF COMBUSTION PRODUCTS:** Carbon monoxide and carbon dioxide can be released in fires and found in engine exhaust and other forms of hydrocarbon combustion. Carbon monoxide in moderate concentrations can cause symptoms of headache, nausea, vomiting, increased cardiac output, and confusion. Exposure to higher concentrations of carbon monoxide can cause loss of consciousness, heart damage, brain damage, and/or death. Exposure to high concentrations of carbon dioxide can cause simple asphyxiation by displacing available oxygen. Combustion of this and other similar materials should only be carried out in well ventilated areas.

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:** Medical conditions which have the same symptoms and effects as those outlined under the health hazard information section can be aggravated by exposure to this product.

**MEDICAL LIMITATION:** Persons with heart conditions due to asphyxiating effects.

#### ROUTES OF EXPOSURE

**INHALATION:** Exposure to high concentrations of the gas can cause central nervous system depression, loss of consciousness and possible asphyxiation. May irritate the respiratory tract.

**SKIN CONTACT:** If the liquid or expanding gas comes into contact with the unprotected skin, it can cause cold burns or frost bite.

**SKIN ABSORPTION:** None expected.

**EYE CONTACT:** Contact of the liquid or expanding gas with eyes can produce cold burns.

**INGESTION:** Ingestion is virtually impossible.

#### EFFECTS OF OVEREXPOSURE

**ACUTE:** Exposure to high concentrations can cause central nervous system depression, loss of consciousness and possible asphyxiation.

**CHRONIC:** No permanent effects are reported.

### CARCINOGENICITY INFORMATION

Butane is not listed as carcinogenic by NTP, OSHA, or ACGIH.

### MUTAGENICITY/TERATOGENICITY/ REPRODUCTIVE TOXICITY INFORMATION

**Mutagenicity:** Not a mutagen.

**Teratogenicity:** No teratogenic effects are observed.

**Reproductive Toxicity:** No reproductive effects observed.

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### 4. FIRST AID MEASURES

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**EYES:** In the event of cold burns, SEEK MEDICAL ATTENTION.

**SKIN:** Thaw frozen clothing before removal. In the event of cold burns, do not rub frozen areas and cover with sterile dressing only. SEEK MEDICAL ATTENTION.

**INHALATION:** Move victim from contaminated area to fresh air. If breathing has stopped, resuscitate and administer oxygen if readily available. **SEEK MEDICAL ATTENTION IMMEDIATELY.**

**INGESTION:** NA

**NOTES TO PHYSICIAN:** Treat symptomatically.

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### 5. FIRE AND EXPLOSION DATA

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**FLASH POINT:** -60°C (COC)

**AUTOIGNITION TEMPERATURE:** 360°C

**FLAMMABLE LIMITS IN AIR:** UEL: 9.0%  
LEL: 1.5%

**EXTINGUISHING MEDIA:** SHUT OFF SUPPLY BEFORE ATTEMPTING TO EXTINGUISH. Dry chemical, carbon dioxide may be used to extinguish. Water spray should be used to keep exposed equipment cool and help disperse the vapours and protect persons attempting to stop a leak.

**FIRE FIGHTING:** Move exposed containers from fire area if it can be done without risk. Cool exposed containers with water from unmanned hose holder or monitor nozzles until well after fire is out. Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn until fuel source is shut off or all material is consumed. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Maintain safe distances and evacuate appropriately.

**SPECIAL FIRE FIGHTING PROCEDURES:** Pressure-demand, self-contained breathing apparatus should be provided for fire fighters in buildings or confined areas where this product is stored. Storage containers exposed to fire should be kept cool with water spray.

**UNUSUAL FIRE AND EXPLOSION HAZARD:** Vapour is heavier than air and may travel some distance to source of ignition and flash back with explosive force. Vapour may explode if ignited in an enclosed area. Transfer to and from commonly grounded containers.

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### 6. ACCIDENTAL RELEASE MEASURES

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Eliminate all sources of ignition (flames, sparks, heat, electrical equipment). Remove all unnecessary persons from release area to an upwind location and deny entry. Shut off supply if able to do so without risk. Allow spaces to ventilate or use explosion-proof equipment and water spray to disperse vapours. Remove leaking containers outdoors or to an isolated, well ventilated area and transfer using explosion-proof equipment and grounded and bonded transfer lines to an appropriate container.

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### 7. HANDLING AND STORAGE INFORMATION

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Consult NFPA 58 for requirements in storage, handling, transportation, and use of product.

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### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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**VENTILATION REQUIREMENTS:** Use engineering controls to process, handle, and minimize release. Work in well ventilated areas. Specific requirements may apply, see Section 7 above.

**SPECIFIC PERSONAL PROTECTIVE EQUIPMENT**

**RESPIRATORY:** Respiratory protection is not required under normal use. Where engineering controls are not feasible, use positive pressure supplied air respiratory protection following manufacturer's recommendation.

**EYE:** No special protection required under normal use. Use face shield (8-inch minimum), impervious clothing, and goggles where contact with liquids is possible to prevent contact with liquid butane. (See RESPIRATORY PROTECTION.)

**GLOVES:** No special protection required under normal conditions. Insulated gloves should be worn where liquids or expanding gas may be generated.

**OTHER CLOTHING AND EQUIPMENT:** Standard work clothing.

**EXPOSURE MONITORING**

**BIOLOGICAL:** Breath analysis may be applicable.

**PERSONAL/AREA:** Combustible gas analyzer for leak testing.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**APPEARANCE AND ODOUR:** White vapour upon release, or colorless gas with odour not detectable below ~500 ppm; no odorant added.

**BOILING RANGE @ 760 mm Hg:** 31°F (-0.6°C)

**FREEZING POINT:** -310 °F (-190 °C)

**MELTING POINT:** -281°F (-180 °C)

**EVAPORATION RATE (BuAc=1):** NA

**VAPOR PRESSURE @ 25°C:** > 1800 mmHg

**VAPOR DENSITY (Air=1):** 2.07 @ 32°F

**VOLATILES BY VOL.:** 100%

**SPECIFIC GRAVITY @ 60°F:** 0.58

**pH:** NA

**SOLUBILITY IN H2O % BY WT.:** Trace

**10. STABILITY AND REACTIVITY INFORMATION**

**CONDITIONS CONTRIBUTING TO INSTABILITY:** Under normal conditions this product is stable. Avoid sources of ignition such as flames, hot surfaces, electrical or frictional sparks, etc.

**INCOMPATIBILITY:** Reacts vigorously with oxidizing materials and is spontaneously explosive in sunlight in the presence of chlorine.

**HAZARDOUS DECOMPOSITION PRODUCTS:** May decompose at high temperatures to form CO & CO<sub>2</sub>

**CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION:** Does not undergo hazardous polymerization under normal conditions. Under high temperature and high pressure, it is polymerized to polypropylene.

**11. TOXICOLOGICAL INFORMATION**

For further information, contact MSDS Assistance.

**12. ECOLOGICAL INFORMATION**

For further information, contact MSDS Assistance.

**13. DISPOSAL CONSIDERATIONS**

Shipment, storage, disposal, and cleanup actions of waste materials are regulated under local, state and federal rules. Contact the appropriate agencies if uncertain of applicability. Waste management may include burning in suitable combustion chamber or vent safely.

**14. TRANSPORT INFORMATION**

<b>TDG PROPER SHIPPING NAME</b>	Liquefied Petroleum Gas	Butane
<b>TDG HAZARD CLASS</b>	2.1	2.1

<b>TDG I.D. NUMBER</b>	UN1075	UN1011
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**15. REGULATORY INFORMATION**

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**WHMIS CLASS:**

Class B1: Flammable Gas

Class A: Compression Gas

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

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**16. PREPARER & OTHER INFORMATION**

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**MSDS Prepared By:**

**ULTRAMAR LTD**

**NFPA (National Fire Protection Association) Hazard Ratings Codes**

Fire	Health	Reactivity	Other
4	1	0	

Based on "Standard System for the Identification of the Fire Hazards of Materials, NFPA No. 704 M

This Material Safety Data Sheet was prepared by Ultramar Ltd in accordance with SOR/88-66. All information, recommendations and suggestions appearing herein concerning this product are based upon tests and data believed to be reliable, however, it is the user's responsibility to determine the safety, toxicity and suitability for his own use of the product described herein. Since the actual use by others is beyond our control, no guarantee expressed or implied is made by Ultramar Ltd as to the effects of such use, the results to be obtained or the safety and toxicity of the product nor does Ultramar Ltd assume any liability arising out of use by others of the product referred to herein. Nor is the information herein to be construed as absolutely complete since additional information may be necessary or Desirable when particular or exceptional conditions or circumstances exist or because of applicable laws or government regulations.

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## Definitions of Material Safety Data Sheet Terminology

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### GOVERNMENT AGENCIES AND PRIVATE ASSOCIATIONS

**ACGIH** - American Conference of Governmental Industrial Hygienists, (private association)  
**CSA** - Canadian Standards Association  
**IARC** - International Agency for Research on Cancer, (private association)  
**NFPA** - National Fire Protection Association, (private association)  
**NIOSH** - National Institute of Occupational Safety and Health, U.S. Department of Health and Human Services  
**NTP** - National Toxicology Program, (private association)  
**WHMIS** - Workplace Hazardous Material Information System  
**TDG** - Canadian Regulations for the Transportation of Dangerous Goods

### HAZARD AND EXPOSURE INFORMATION

**Acute Hazard** - An adverse health effect which occurs rapidly as a result of short term exposure.  
**CAS #** - American Chemical Society's Chemical Abstract service registry number which identifies the product and/or ingredients.  
**Ceiling** - The concentration that should not be exceeded during any part of the working exposure  
**Chronic Hazard** - An adverse health effect which generally occurs as a result of long term exposure or short term exposure with delayed health effects and is of long duration  
**Fire Hazard** - A material that poses a physical hazard by being flammable, combustible, pyrophoric or an oxidizer as defined by 29 CFR 1910.1200  
**Hazard Class** - DOT hazard classification  
**Hazardous Ingredients** - Names of ingredients which have been identified as health hazards  
**IDLH** - Immediately Dangerous to Life and Health, the airborne concentration below which a person can escape without respiratory protection and exposure up to 30 minutes, and not suffer debilitating or irreversible health effects. Established by NIOSH.  
**mg/m<sup>3</sup>** - Milligrams of contaminant per cubic meter of air, a mass to volume ratio  
**N/A** - Not available or no relevant information found  
**NA** - Not applicable  
**PEL** - OSHA permissible exposure limit; an action level of one half this value may be applicable  
**ppm** - Part per million (one volume of vapour or gas in one million volumes of air)  
**Pressure Hazard** - A material that poses a physical hazard due to the potential of a sudden release of pressure such as explosive or a compressed gas as defined by 29 CFR 1910.1200  
**Reactive Hazard** - A material that poses a physical hazard due to the potential to become unstable reactive, water reactive or that is an organic peroxide as defined by 29 CFR 1910.1200.  
**STEL** - The ACGIH Short-Term Exposure Limit, a 15-minute Time-Weighted Average exposure which should not be exceeded at any time during a workday, even if the 8-hour TWA is less than the TLV.  
**TLV** - ACGIH Threshold Limit Value, represented herein as an 8-hour TWA concentration.  
**8-hour TWA** - The time weighted average concentration for a normal 8-hour workday and a 40-hour workweek, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.  
**W** - DO NOT ADD WATER - water reactive materials may produce toxic gas, extreme heat, or chemical reaction on contact with water.  
**LD<sub>50</sub>** - Single dose of a substance that, when administered by a defined route in an animal assay, is expected to cause the death of 50% of the defined animal population.  
**LC<sub>50</sub>** - The concentration of a substance in air that, when administered by means of inhalation over a specified length of time in an animal assay, is expected to cause the death of 50% of a defined animal population.