



Safety Data Sheet

Material Name: N-BUTANE

SDS ID: MAT15370

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name

N-BUTANE

Synonyms

MTG MSDS 11; BUTANE; LIQUIFIED PETROLEUM GAS; NORMAL BUTANE; BUTYL HYDRIDE; LPG; UN 1011; C4H10

Chemical Family

Hydrocarbons, aliphatic

Product Description

Classification determined in accordance with Compressed Gas Association standards.

Product Use

Industrial and Specialty Gas Applications.

Restrictions on Use

None known.

Details of the supplier of the safety data sheet

MATHESON TRI-GAS, INC.

150 Allen Road, Suite 302

Basking Ridge, NJ 07920

General Information: 1-800-416-2505

Emergency #: 1-800-424-9300 (CHEMTREC)

Outside the US: 703-527-3887 (Call collect)

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.

Flammable Gases - Category 1

Gases Under Pressure - Liquefied gas

GHS Label Elements

Symbol(s)



Signal Word

Danger

Hazard Statement(s)

Extremely flammable gas.

Contains gas under pressure; may explode if heated.

Precautionary Statement(s)

Prevention

Keep away from heat/sparks/open flame/hot surfaces - No smoking.

Response

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

Eliminate all ignition sources if safe to do so.

Storage

Protect from sunlight. Store in a well-ventilated place.



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Dispose of contents/container in accordance with local/regional/national/international regulations.

Other Hazards

May cause frostbite upon sudden release of liquefied gas.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
106-97-8	Butane	100

Section 4 - FIRST AID MEASURES**Inhalation**

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin

If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

Eyes

Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion

If swallowed, get medical attention.

Most Important Symptoms/Effects**Acute**

suffocation, frostbite

Delayed

no information on significant adverse effects.

Note to Physicians

For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES**Extinguishing Media****Suitable Extinguishing Media**

carbon dioxide, regular dry chemical, Large fires: water spray or fog

Unsuitable Extinguishing Media

None known.

Special Hazards Arising from the Chemical

Severe explosion hazard. Severe fire hazard. Vapor/air mixtures are explosive. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back.

Hazardous Combustion Products

Oxides of carbon

Fire Fighting Measures

Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Stop leak if possible without personal risk. Let burn unless leak can be stopped immediately.



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For smaller tanks or cylinders, extinguish and isolate from other flammables. Evacuation radius: 1600 meters (1 mile). Stop flow of gas.

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up

Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Avoid heat, flames, sparks and other sources of ignition. Do not touch spilled material. Stop leak if possible without personal risk. Reduce vapors with water spray. Keep unnecessary people away, isolate hazard area and deny entry. Remove sources of ignition. Ventilate closed spaces before entering.

Environmental Precautions

Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Wash hands thoroughly after handling. Avoid breathing gas. Use only outdoors or in a well-ventilated area.

Conditions for Safe Storage, Including any Incompatibilities

Protect from sunlight. Store in a well-ventilated place.

Store and handle in accordance with all current regulations and standards. Keep container tightly closed. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.110. U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

Incompatible Materials

oxidizing materials

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Butane	106-97-8
ACGIH:	1000 ppm STEL
NIOSH:	800 ppm TWA ; 1900 mg/m3 TWA
Mexico:	800 ppm TWA VLE-PPT ; 1900 mg/m3 TWA VLE-PPT

EU - Occupational Exposure (98/24/EC) - Binding Biological Limit Values and Health Surveillance Measures

There are no biological limit values for any of this product's components.

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

There are no biological limit values for any of this product's components.

Engineering Controls

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection

For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.



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For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

Respiratory Protection

The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA. 2000 ppm. Any supplied-air respirator. Any self-contained breathing apparatus with a full facepiece. Emergency or planned entry into unknown concentrations or IDLH conditions -. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Escape -. Any appropriate escape-type, self-contained breathing apparatus. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Glove Recommendations

Wear insulated gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	colorless gas	Physical State	gas
Odor	unpleasant odor	Color	colorless
Odor Threshold	6.16 ppm	pH	Not available
Melting Point	-138 °C (-216 °F)	Boiling Point	-1 °C (30 °F)
Boiling Point Range	Not available	Freezing point	Not available
Evaporation Rate	Not available	Flammability (solid, gas)	Not available
Autoignition Temperature	287 °C (549 °F)	Flash Point	-60 °C Closed Cup (-76 °F)
Lower Explosive Limit	1.9 %	Decomposition temperature	Not available
Upper Explosive Limit	8.5 %	Vapor Pressure	1557 mmHg @ 20 °C
Vapor Density (air=1)	2.1	Specific Gravity (water=1)	0.5788 at 0 °C
Water Solubility	15 %	Partition coefficient: n-octanol/water	Not available
Viscosity	Not available	Solubility (Other)	Not available
Bioconcentration Factor (BCF)	0.74	Density	Not available
Henry's Law Constant	0.0007938 atm-m ³ /mole	KOC	900 (Estimate)



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Log KOW	2.89	Physical Form	gas
Molecular Formula	C-H3-(C-H2)2-C-H3	Molecular Weight	58.12

Solvent Solubility**Soluble**

alcohol, ether, chloroform

Section 10 - STABILITY AND REACTIVITY**Reactivity**

No reactivity hazard is expected.

Chemical Stability

Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions

Will not polymerize.

Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Containers may rupture or explode if exposed to heat.

Incompatible Materials

oxidizing materials

Hazardous decomposition products

Oxides of carbon

Section 11 - TOXICOLOGICAL INFORMATION**Information on Likely Routes of Exposure****Inhalation**

irritation, nausea, vomiting, headache, drowsiness, symptoms of drunkenness, tingling sensation, suffocation, convulsions, coma

Skin Contact

blisters, frostbite

Eye Contact

frostbite, blurred vision

Ingestion

frostbite

Acute and Chronic Toxicity**Component Analysis - LD50/LC50**

The components of this material have been reviewed in various sources and the following selected endpoints are published:

Butane (106-97-8)Inhalation LC50 Rat 658 g/m³ 4 h**Product Toxicity Data****Acute Toxicity Estimate**

Inhalation - Gas	> 20000 ppm
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Immediate Effects

suffocation, frostbite

Delayed Effects

no information on significant adverse effects.

Irritation/Corrosivity Data



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No animal testing data available for skin or eyes.

Respiratory Sensitization

No data available.

Dermal Sensitization

No data available.

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA

Germ Cell Mutagenicity

No data available.

Tumorigenic Data

No data available

Reproductive Toxicity

No data available.

Specific Target Organ Toxicity - Single Exposure

No target organs identified.

Specific Target Organ Toxicity - Repeated Exposure

No target organs identified.

Aspiration hazard

Not applicable.

Medical Conditions Aggravated by Exposure

None known.

Additional Data

Stimulants such as epinephrine may induce ventricular fibrillation.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity

No LOLI ecotoxicity data are available for this product's components

Persistence and Degradability

No data available.

Bioaccumulative Potential

Bioconcentration potential in aquatic organisms is moderate based on a BCF value of 33.

Mobility

Expected to have low mobility in soil.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose in accordance with all applicable regulations.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components

Section 14 - TRANSPORT INFORMATION

US DOT Information:

Shipping Name: BUTANE

Hazard Class: 2.1

UN/NA #: UN1011

Required Label(s): 2.1

IMDG Information:

Shipping Name: BUTANE

Hazard Class: 2.1



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UN#: UN1011
Required Label(s): 2.1

TDG Information:
Shipping Name: BUTANE
Hazard Class: 2.1
UN#: UN1011
Required Label(s): 2.1

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations

None of this products components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA Section 311/312 (40 CFR 370 Subparts B and C)

Acute Health: Yes **Chronic Health:** No **Fire:** Yes **Pressure:** Yes **Reactivity:** No

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Butane	106-97-8	Yes	Yes	Yes	Yes	Yes

Not listed under California Proposition 65

Canada Regulations

Canadian WHMIS Ingredient Disclosure List (IDL)

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

Butane	106-97-8
	1 %

WHMIS Classification

A , B1

Component Analysis - Inventory

Butane (106-97-8)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR - KECI/KECL	KR - TCCA	CN	NZ	MX	TW
Yes	DSL	EIN	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

NFPA Ratings

Health: 1 Fire: 4 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes

Updated: 03/24/2016

Key / Legend



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ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CFR - Code of Federal Regulations (US); CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC - European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KECI - Korea Existing Chemicals Inventory; KECL - Korea Existing Chemicals List; KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; NDSL - Non-Domestic Substance List (Canada); NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL - Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH - Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA - Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); WHMIS - Workplace Hazardous Materials Information System (Canada).

Other Information**Disclaimer:**

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