

# SAFETY DATA SHEET



Revision: 3.0 Date: 14 April 2021

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

**Butane**

## SECTION 1: IDENTIFICATION

### Product identifier

Product name Butane  
CAS No. 106-97-8

### Other means of identification

Butane, Normal Butane, n-Butane, Commercial Butane, Mixed Butane, Natural Butane

### Relevant identified uses of the substance or mixture and uses advised against

Identified Use(s) This product is intended for use as a refiner feedstock, fuel or for use in engineered processes.  
Uses advised against Anything other than the above.

### Details of the supplier of the safety data sheet

Supplier Vitol Inc.  
2925 Richmond Ave, 11th Floor  
Houston, TX 77098  
Telephone (713) 230-1000  
Fax 713-230-1185  
E-mail (competent person) SDSHOU@vitol.com

### Emergency telephone number

Emergency Phone No. Chemtrec: US/Canada: 1-800-424-9300 (24h)  
Mexico: 800 681 9531 (24h)

## SECTION 2: HAZARDS IDENTIFICATION

### Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200

Physical hazards Flammable gas, Category 1  
Gases under pressure, Liquefied gas  
Health hazards Simple Asphyxiant  
Environmental hazards Hazardous to the aquatic environment, acute, Category 2

### Label elements

Hazard Pictogram(s)



Signal Word(s)

DANGER

Hazard Statement(s)

Extremely flammable gas.  
Contains gas under pressure; may explode if heated.  
May displace oxygen and cause rapid suffocation.  
Toxic to aquatic life.

Precautionary Statement(s)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
If safe to do so: Eliminate sources of ignition.  
Avoid release to the environment.  
Protect from sunlight. Store in a well-ventilated place.  
Dispose of contents in accordance with local, state or national legislation.

# SAFETY DATA SHEET



Revision: 3.0 Date: 14 April 2021

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

**Butane**

## Other hazards

Gases under pressure: Compressed gas / Refrigerated liquefied gas / Compressed dissolved gas  
May form explosive mixture with air. The vapour is heavier than air; beware of pits and confined spaces.

## Percent of the mixture consists of ingredient(s) of unknown acute toxicity:

0% of the mixture consists of ingredients of unknown acute inhaled toxicity.  
0% of the mixture consists of ingredients of unknown acute oral toxicity.  
0% of the mixture consists of ingredients of unknown acute dermal toxicity.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### Substances

Classification: OSHA HCS (29 CFR 1910.1200)

Chemical identity of the substance	%W/W	CAS No.	EC No.
Butane	94 - 100	106-97-8	203-448-7

### Hazardous constituents

Chemical identity of the substance	%W/W	CAS No.	EC No.
Isobutane	0 - 6	75-28-5	200-857-2
Butene	0 - 1	25167-67-3	246-689-3
Buta-1,3-diene	0 - 0.1	106-99-0	203-450-8

## SECTION 4: FIRST AID MEASURES



### Description of first aid measures

Self-protection of the first aider

Eliminate sources of ignition. Use personal protective equipment as required. Wear appropriate personal protective equipment, avoid direct contact. Drench contaminated clothing with water before removing to avoid risk of sparks from static electricity. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Avoid all contact.

Inhalation

IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical advice/attention if you feel unwell.

Skin contact

IF ON SKIN (or hair): In case of contact with liquid, thaw frosted parts with water. Do not attempt to remove clothing which has stuck to the skin. Wash affected area with plenty of soap and water. If irritation (redness, rash, blistering) develops, get medical attention. Call a POISON CENTER/doctor.

Eye Contact

IF IN EYES: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation develops and persists, get medical attention. If frostbite, call a physician.

Ingestion

IF SWALLOWED: Do NOT induce vomiting. If vomiting occurs turn patient on side. IF exposed or concerned: Call a POISON CENTER/doctor.

### Most important symptoms and effects, both acute and delayed

Inhalation: Drowsiness, Headache  
Skin Contact: Frostbite (cold burn)  
Eye Contact: May cause eye irritation.

### Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Do not attempt to remove clothing that adheres to the skin due to freezing.

Notes to a physician: IF INHALED: Administer oxygen if available and artificial respiration if necessary.

## SECTION 5: FIREFIGHTING MEASURES

### Extinguishing media

Suitable extinguishing media

If gas has ignited, do not attempt to extinguish it. Use water spray to cool and disperse vapours and protect personnel.

# SAFETY DATA SHEET



Revision: 3.0 Date: 14 April 2021

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

**Butane**

Unsuitable extinguishing media

**Special hazards arising from the substance or mixture**

Do not use water jet. Direct water jet may spread the fire.

Extremely flammable liquefied gas. Contains gas under pressure; may explode if heated. Do not extinguish a leaking gas flame unless absolutely necessary. Explosive re-ignition may occur. Decomposes in a fire giving off toxic fumes: A mixture of solid and liquid particulates and gases including unidentified organic and inorganic compounds. May form explosive mixture with air. Prevent liquid entering sewers, basements and any watercourses. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback.

**Advice for firefighters**

Fight fire with normal precautions from a reasonable distance. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. Avoid release to the environment. Dike fire control water for later disposal.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

Evacuate the area and keep personnel upwind. No action should be taken involving personal risk. Eliminate sources of ignition. Stop leak if safe to do so. Do not breathe gas. Avoid all contact. Keep upwind. Ensure suitable personal protection during removal of spillages. A self contained breathing apparatus should be worn.

**Methods and material for containment and cleaning up**

Spills of this liquefied gas may form ice, which can plug drains and can make valves inoperable. Contact of water with liquefied gas can result in boiling, frothing, and rapid generation of vapour. Isolate the area and allow vapours to disperse. In case of contact with liquid, thaw frosted parts with water, remove clothing carefully and wash with soap & water.

Only trained and properly protected personnel must be involved in clean-up operations. Swirl gases/vapours/mists with water spray jet. Ensure adequate ventilation. Isolate the area and allow vapours to disperse.

## SECTION 7: HANDLING AND STORAGE

**Precautions for safe handling**

Keep away from sources of ignition - No smoking. Use only outdoors or in a well-ventilated area. Prevent vapour build up by providing adequate ventilation during and after use. Take precautionary measures against static discharge. Use only non-sparking tools. All parts of the plant and equipment should be electrically bonded together and connected to earth. Electrical continuity should be checked at regular intervals. Antistatic clothing and footwear should be used. The vapour is heavier than air; beware of pits and confined spaces. Avoid contact with skin and eyes. Do not ingest. Avoid breathing vapours. See Section: 8. Keep good industrial hygiene. Wash hands thoroughly after handling. Contaminated clothing should be thoroughly cleaned.

**Conditions for safe storage, including any incompatibilities**

Light hydrocarbon vapours can build up in the headspace of containers. These can cause flammability / explosion hazards. Bund storage facilities to prevent soil and water pollution in the event of spillage. Keep only in original container. Keep containers properly sealed when not in use. Protect from sunlight. Containers of this material may be hazardous when empty since they retain product residue.

Storage temperature  
Incompatible materials

Stable at ambient temperatures.

Oxidizing agents, Strong acids, strong bases

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational exposure limits**

# SAFETY DATA SHEET



Revision: 3.0 Date: 14 April 2021

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

**Butane**

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m <sup>3</sup> )	STEL (ppm)	STEL (mg/m <sup>3</sup> )	Note
Butane	106-97-8	-	-	-	-	NIOSH
		800	1900	-	-	OSHA (Z-1)
		-	-	1000	-	ACGIH
Isobutane	75-28-5	800	1900	-	-	NIOSH
		-	-	-	-	OSHA (Z-1)
		-	-	1000	-	ACGIH
Butene	25167-67-3	-	-	-	-	NIOSH
		-	-	-	-	OSHA (Z-1)
		-	-	250	-	ACGIH
Buta-1,3-diene	106-99-0	0, 19 LDQ*	-	-	-	NIOSH
		1	-	-	-	OSHA (Z-1)
		2	-	-	-	ACGIH, A2

Note: OSHA PELs 1910.1000 TABLE Z-1/ NIOSH RELs / ACGIH TLVs

\*lowest feasible concentration

A2: Suspected Human Carcinogen: Human data are accepted as adequate in quality but are conflicting or insufficient to classify the agent as a confirmed human carcinogen; OR, the agent is carcinogenic in experimental animals at dose(s), by route(s) of exposure, at site(s), of histological type(s), or by mechanism(s) considered relevant to worker exposure. The A2 is primarily when there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals with relevance to humans.

### Biological exposure indicies

SUBSTANCE	CAS No.	Determinant	Biological Exposure Indices	Sampling Time	Note
Buta-1,3-diene	106-99-0	1,2 Dihydroxy-4-(N-acetylcysteinyl)butane in urine	2.5 mg/L	End of shift	B, Sq
		Mixture of N-1- and N-2-(hydroxybutenyl)valine hemoglobin (Hb) adducts in blood	2.5 pmol/g Hb	Not critical	Sq

### Appropriate engineering controls

Provide adequate ventilation, including appropriate local extraction if dusts, fumes or vapours are likely to be evolved. Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Guarantee that the eye flushing systems and safety showers are located close to the working place.

### Individual protection measures, such as personal protective equipment

Fuels are typically used, transferred and transported in closed systems. If exposure is likely (i.e. during sampling) the following advice may be appropriate. Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

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Eye/ face protection



Use eye protection according to EN 166, designed to protect against liquid splashes.

Skin protection



**Hand protection:** Wear impervious gloves (recommended: EN374). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer. Protective index 6, corresponding > 480 minutes of permeation time according to EN 374. Efficiency of at least 80%). Recommended: Nitrile rubber; Fluoroelastomer (Minimum thickness – 0.5 – 0.65mm).

# SAFETY DATA SHEET



Revision: 3.0 Date: 14 April 2021

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

**Butane**

Respiratory protection



**Body protection: Wear anti-static clothing and shoes.**

Small scale: Wear suitable coveralls to prevent exposure to the skin.

Large scale: Chemical protection suit.

When the product is heated / In case of inadequate ventilation wear respiratory protection. The use of a high efficiency filter (recommended: EN143) is recommended. Filter type A1.

Closed system(s): Not normally required.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Gas: Liquefied gas
Odour	Gasoline
Odour threshold	not determined
pH	not applicable
Melting point/freezing point	-165.75 °C
Initial boiling point and boiling range	not determined
Flash point	not determined
Evaporation rate	not determined
Flammability (solid, gas)	Extremely flammable gas.
Upper/lower flammability or explosive limits	2.1 - 15 % by volume, Air
Vapour pressure	not determined
Vapour density	2 (Air = 1)
Relative density	0.57 (Water = 1)
Solubility(ies)	Insoluble in water
Partition coefficient: n-octanol/water	1.09 - 2.8
Auto-ignition temperature	not determined
Decomposition temperature	not determined
Viscosity	not applicable

## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

#### Chemical stability

#### Possibility of hazardous reactions

#### Conditions to avoid

#### Incompatible materials

#### Hazardous decomposition products

Stable under normal conditions. Reacts with - Strong oxidising agents

Stable under normal conditions.

Vapour is explosive in air at temperatures higher than the flash point. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback.

Keep away from heat, sources of ignition and direct sunlight.

Keep away from: Oxidizing agents, Strong acids, strong bases

Decomposes in a fire giving off toxic fumes: Carbon monoxide, Carbon dioxide

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on toxicological effects

#### Acute toxicity - Ingestion

#### Acute toxicity - Inhalation

#### Acute toxicity - Skin contact

#### Skin corrosion/irritation

#### Serious eye damage/irritation

#### Respiratory or skin sensitisation

#### Germ cell mutagenicity

#### Carcinogenicity

Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) >2,000 mg/kg.

Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) > 5 mg/L (Vapour)

Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) >2,000 mg/kg

Based upon the available data, the classification criteria are not met. Based upon the available data, the classification criteria are not met.

Frostbite (cold burn).

Based upon the available data, the classification criteria are not met.

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# SAFETY DATA SHEET



Revision: 3.0 Date: 14 April 2021

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

**Butane**

<b>Reproductive toxicity</b>	Based upon the available data, the classification criteria are not met.
<b>STOT - single exposure</b>	Based upon the available data, the classification criteria are not met.
<b>STOT - repeated exposure</b>	Based upon the available data, the classification criteria are not met.
<b>Aspiration hazard</b>	Based upon the available data, the classification criteria are not met.
<b>Other hazards</b>	Simple Asphyxiant: May displace oxygen and cause rapid suffocation.
<b>Information on likely routes of exposure</b>	
Inhalation	Possible – accidental exposure
Ingestion	Possible – accidental exposure
Skin contact	Possible – accidental exposure
Eye contact	Unlikely – accidental exposure
<b>Early onset symptoms related to exposure</b>	Inhalation: Drowsiness, Headache Skin Contact: Frostbite (cold burn) Eye Contact: May cause eye irritation.
<b>Delayed health effects from exposure</b>	None Known
<b>Exposure levels and health effects</b>	See Section: 8
<b>Interactive effects</b>	None Known
<b>Other information</b>	
OSHA Designated Carcinogen	Not listed
NIOSH Occupational Carcinogen List	Not listed
NTP Report on Carcinogens	Not listed
IARC Monographs	Not listed

## SECTION 12: ECOLOGICAL INFORMATION

<b>Toxicity</b>	Toxic to aquatic life. LC50: 24.11 mg/L (Fish, 96 h, Quantitative structure-activity relationship (QSAR)) LC50: 14.22 mg/L (Daphnia spec, 48 h, Quantitative structure-activity relationship (QSAR)) LC50: 7.71 mg/L (Green Algae, 96 h, Quantitative structure-activity relationship (QSAR)) Source: ECHA registration dossier Butane
<b>Persistence and degradability</b>	Readily biodegradable. Result: 100 % (385.5 h) Source: ECHA registration dossier Butane
<b>Bioaccumulative potential</b>	No indication of bioaccumulation potential. Partition coefficient n-octanol/water (log P O/W): 1.09 – 2.8 Source: ECHA registration dossier Butane
<b>Mobility in soil</b>	No data available
<b>Other adverse effects</b>	None known.

## SECTION 13: DISPOSAL CONSIDERATIONS

<b>Waste treatment methods</b>	Dispose of this material and its container as hazardous waste. Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point. Disposal should be in accordance with local, state or national legislation. Containers of this material may be hazardous when empty since they retain product residue.
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## SECTION 14: TRANSPORT INFORMATION

	<b>Road/rail (ADR/RID)</b>	<b>Sea transport (IMDG)</b>	<b>Air (ICAO/IATA)</b>
<b>UN number</b>	UN1011	UN1011	UN1011
<b>UN proper shipping name</b>	BUTANE	BUTANE	BUTANE
<b>Transport hazard class(es)</b>	2.1	2.1	2.1

# SAFETY DATA SHEET



Revision: 3.0 Date: 14 April 2021

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

Butane

<b>Packing group</b>	-	-	-
<b>Environmental hazards</b>	Not classified	Not classified as a Marine Pollutant.	Not classified
<b>Special precautions for user</b>	See section 2		
<b>Transport in bulk according to Annex II of Marpol and the IBC Code</b>	No information available.		

## SECTION 15: REGULATORY INFORMATION

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### US Federal Regulations

TSCA Inventory	Listed
TSCA Chemical Data Reporting (CDR) Rule	Listed
NIOSH Occupational Carcinogen List	Not listed
EPCRA Section 313	Not listed
CWA 307- Toxic	Not listed
CERCLA - Hazardous Substances	Listed
CWA Section 311 List of Hazardous Substances	Not listed
CAA Section 112(r) Regulated Substance List	Listed

#### US State Regulations

Proposition 65 (California)	Listed
Massachusetts, New Jersey, Pennsylvania, Rhode Island- State Right to Know Lists	Listed (New Jersey, Rhode Island State)
New York -State Right to Know Lists	Listed
Minnesota - State Right to Know Lists	Listed
Massachusetts – Toxic Use reduction act	Listed

#### Non-Regional

IARC Monographs	Not listed
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## SECTION 16: OTHER INFORMATION

**The following sections contain revisions or new statements:** Updated substance / mixture classification. Updated version and date. New format has been issued, all sections have been updated to include new information. Review SDS with care.

<b>Version</b>	3.0
<b>Revision Date</b>	14 April 2021
<b>Date of First Issue</b>	Not available. 2 <sup>ND</sup> ISSUE RELEASED JUNE, 15 2015

This Safety Data Sheet was prepared in accordance with US Regulation OSHA HCS (29 CFR 1910.1200)

#### References:

Existing Safety Data Sheet (SDS),  
EU Harmonised Classification(s) for Butane (CAS No.: 106-97-8), Isobutane (CAS No.: 75-28-5); Butene (CAS No.: 25167-67-3); Buta-1,3-diene (CAS No.: 106-99-0)  
Existing ECHA registration(s) for Butane (CAS No.: 106-97-8)

#### Legend

ADR/RID	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road / RID: Regulations concerning the international railway transport of dangerous goods
BCF	Bioconcentration factor (BCF)
CAS	CAS: Chemical Abstracts Service
EC	EC: European Community
EN	European Standard
EU	European Union
IATA	IATA: International Air Transport Association
ICAO/IATA	ICAO: International Civil Aviation Organization / IATA: International Air Transport Association
IMDG	IMDG: International Maritime Dangerous Goods

# SAFETY DATA SHEET



Revision: 3.0 Date: 14 April 2021

ACCORDING TO OSHA HCS (29 CFR 1910.1200)

**Butane**

LC50	Lethal concentration 50
LD50	Lethal dose 50
OECD	Organisation for Economic Cooperation and Development
PBT	Persistent, Bioaccumulative and Toxic
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
UN	United Nations
vPvB	very Persistent and very Bioaccumulative

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

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