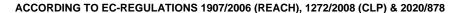
Revision: 17th October 2024 Version: 5.2





BUTANE V8000

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name BUTANE V8000

Product description V8000-BUTANE-BUTANE

Trade Name BUTANE
Product code BUT
CAS No. 106-97-8
EC No. 203-448-7

REACH Registration No. 01-2119474691-32-xxxx

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

Identified Use(s)

Fuel for engines. Blend component.
Uses advised against

Anything other than the above.

1.3 Details of the supplier of the safety data sheet

Company Identification Vitol SA

Place des Bergues 3

1201 Geneva Switzerland +31 10 498 7200 +31 10 452 9545 xreach@vitol.com

E-mail (competent person)

1.4 Emergency Telephone Number

Telephone

Emergency Phone No. +44 (0) 1235 239 670, 24/7 Language(s) spoken: All official European languages.

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Regulation (EC) No. 1272/2008 (CLP)

Hazard Pictogram(s)

Flam. Gas 1; H220

Gases under pressure; H280

2.2 Label elements According to Regulation (EC) No. 1272/2008 (CLP)
Product description BUTANE V8000

auct description BUTANE vo





Signal Word(s) DANGER

Hazard Statement(s) H220: Extremely flammable gas.

H280: Contains gas under pressure; may explode if heated.

Precautionary Statement(s) P210: Keep away from heat, hot surfaces, sparks, open flames and other

ignition sources. No smoking.

P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381: Eliminate all ignition sources if safe to do so.

P410+P403: Protect from sunlight. Store in a well-ventilated place.

Page: 1 of 7

Revision: 17th October 2024 Version: 5.2





BUTANE V8000

2.3 Other hazards

The vapour is heavier than air; beware of pits and confined spaces. Vapour may create explosive atmosphere. The vapour may have narcotic effect. Frostbite (cold burn).

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

SUBSTANCE	CAS No.	EC No.	REACH Registration No.	%W/W
Butane (<0.1% butadiene)	106-97-8	203-448-7	01-2119474691-32-xxxx	100

SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Self-protection of the first aider

Inhalation

Skin contact

Eye contact

Ingestion

4.2 Most important symptoms and effects, both acute and delayed

4.3 Indication of any immediate medical attention and special treatment needed

Notes to a physician:

Eliminate sources of ignition. Use personal protective equipment as required. The vapour is heavier than air; beware of pits and confined spaces. Drench contaminated clothing with water before removing to avoid risk of sparks from static electricity. If it is suspected that fumes are still present, the responder should wear an appropriate mask or self-contained breathing apparatus. Avoid all contact.

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.

IF ON SKIN: Remove clothing and wash thoroughly before use. Wash affected skin with soap and water. If skin irritation or rash occurs: Get medical advice/attention. Frostbite (cold burn): Do not attempt to remove clothing that adheres to the skin due to freezing. Thaw frosted parts with lukewarm water. Do no rub affected area. Seek medical advice.

IF IN EYES: Flush eyes with water for at least 15 minutes while holding eyelids open. Get medical attention if eye irritation develops or persists. Frostbite (cold burn): Obtain immediate medical attention. Treatment by an ophthalmologist due to possible caustic burn of the eyes may be required.

IF SWALLOWED: Rinse mouth. Give 200-300mls (half pint) water to drink. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get medical advice/attention if you feel unwell.

The vapour may have narcotic effect. Skin contact: Frostbite (cold burn)

Unlikely to be required but if necessary treat symptomatically.

IF INHALED: Administer oxygen if available and artificial respiration if necessary.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media Unsuitable extinguishing media

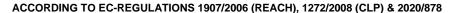
5.2 Special hazards arising from the substance or mixture

Water spray, foam, dry powder or CO2

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

Extremely flammable gas. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Vapour may create explosive atmosphere. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback. The vapour is heavier than air; beware of pits and confined spaces. Combustion or thermal decomposition will evolve very toxic, irritant and

Revision: 17th October 2024 Version: 5.2





BUTANE V8000

Compressed gas

5.3 Advice for firefighters

flammable vapours. Hazardous decomposition products: Carbon monoxide, Carbon dioxide, Aldehydes, Ketones, Hydrogen, Alkene, Methane, A mixture of solid and liquid particulates and gases including unidentified organic and inorganic compounds.

Contains gas under pressure; may explode if heated. Sealed containers may rupture explosively if hot. Do not pierce or burn, even after use.

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 environment.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

6.2 Environmental precautions

6.3 Methods and material for containment and cleaning

Small scale:

Large scale:

6.4 Reference to other sections

Avoid all contact. Do not breathe vapour. Shut off source of leak if safe to do so. Eliminate all ignition sources if safe to do so. Ensure adequate ventilation. Stay upwind/keep distance from source. In case of inadequate ventilation wear respiratory protection. Wear suitable protective clothing. The vapour is heavier than air; beware of pits and confined spaces. Danger of flashback. Take precautionary measures against static discharge. Do not use sparking tools. Spillage can create tripping or slipping hazards for personnel, or skidding hazards for vehicles. Only trained and properly protected personnel must be involved in cleanup operations. Contaminated clothing should be thoroughly cleaned.

Avoid release to the environment. Contain the spillage. Any large spillage into watercourses must be alerted to the regulatory authority responsible for environmental protection or other regulatory body.

Only trained and properly protected personnel must be involved in clean-up operations. Ensure adequate ventilation. Isolate the area and allow vapours to disperse.

Contain spillages with sand, earth or any suitable adsorbent material. Allow small spillages to evaporate provided there is adequate ventilation. Transfer to a lidded container for disposal or recovery. Ventilate the area and wash spill site after material pick-up is complete.

In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. Notify police and fire brigade as soon as possible.

See sections 8 and 13

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

7.2 Conditions for safe storage, including any incompatibilities

Storage temperature Incompatible materials

7.3 Specific end use(s)

Avoid all contact. Do not breathe vapour. Eliminate sources of ignition. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. The vapour is heavier than air; beware of pits and confined spaces. Danger of flashback. Take precautionary measures against static discharge. Do not use sparking tools. Provide adequate ventilation, including appropriate local extraction if dusts, fumes or vapours are likely to be evolved. In case of inadequate ventilation wear respiratory protection. Wear suitable protective clothing. Wash hands and exposed skin thoroughly after handling. Do not eat, drink or smoke at the work place. Wash contaminated clothing before reuse.

Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Ensure adequate earthing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep cool.

Chlorine, Oxygen, Strong oxidising agents. Keep away from heat and sources of ignition.

See Section: 1.2

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 Control parameters
- 8.1.1 Occupational exposure limits

Page: 3 of 7

Revision: 17th October 2024 Version: 5.2



ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878

BUTANE V8000

SUBSTANCE	CAS No.	LTEL (8 hr	LTEL (8 hr	STEL (ppm)	STEL	Note
		TWA ppm)	TWA mg/m³)		(mg/m³)	
Butane	106-97-8	600	1450	750	1810	WEL

Source: WEL: Workplace Exposure Limit (UK HSE EH40)

Biological limit value 8.1.2 Not established.

8.1.3 **PNECs and DNELs** Exposure scenarios for these substances are not yet available in the supply

8.2 **Exposure controls**

8.2.1 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, wellventilated (dry) place away from heat and ignition sources. Guarantee that the eye flushing systems and safety showers are closely located to the working place.

8.2.2 Individual protection measures, such as personal protective equipment

Fuels are typically used, transferred and transported in closed systems. Keep good industrial hygiene. Do not eat, drink or smoke at the work place.

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.

Eye/ face protection



Wear eye protection with side protection (EN166). Eyewash bottles should be available.

Skin protection



Hand protection: Wear impervious gloves (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 4, corresponding > 120 minutes of permeation time according to EN 374 Suitable material: Nitrile rubber

Body protection: Apron or other light protective clothing, boots and plastic or rubber gloves.

Respiratory protection



In case of inadequate ventilation wear respiratory protection. A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

Recommended: BS EN 14387:2004+A1

Thermal hazards Skin contact: Frostbite (cold burn).

8.2.3 **Environmental exposure controls** Avoid release to environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state Liquefied gas Colour Odour - 159 °C Melting point/freezing point

Boiling point or initial boiling point and boiling range

Flammability

Lower and upper explosion limit

Colourless Odourless - 2 °C

Extremely flammable gas.

Flammable Limits (Lower) (%v/v): 1.9

Revision: 17th October 2024 Version: 5.2





BUTANE V8000

Flash point Flammable Limits (U

Auto-ignition temperature Decomposition temperature

рΗ

10.4

10.6

Kinematic viscosity

Solubility

Partition coefficient: n-octanol/water (log value)

Vapour pressure

Density and/or relative density Relative vapour density

Particle characteristics

Conditions to avoid

Flammable Limits (Upper) (%v/v): 15

< - 20 °C 410 - 550 °C Not established Not applicable Not established

Water: 0.054 g/l @ 20°C Log Pow: 2.36-2.9 >210,000 pascal @ 20°C

Not established

2.007

Not established

9.2 Other information No information available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity Not determined. Stable under normal conditions.

10.2 Chemical stability Stable under normal conditions.

10.3 Possibility of hazardous reactions Not determined. No information available. Vapour is explosive in air at

temperatures higher than the flash point. Keep away from heat and sources of ignition.

10.5 Incompatible materials
Keep away from: Chlorine, Oxygen, Strong oxidising agents.

Combustion products: Carbon monoxide, Carbon dioxide, Aldehydes, Ketones, Hydrogen, Alkene, Methane, A mixture of solid and liquid particulates and gases

including unidentified organic and inorganic compounds.

SECTION 11: TOXICOLOGICAL INFORMATION

Hazardous decomposition products

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

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

Reproductive toxicity

STOT - Single Exposure
STOT - Repeated Exposure

Aspiration hazard

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

11.2.2 Other information

Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) LD50: > 2,000 mg/kg Based upon the available data, the classification criteria are not met.

LC50 Inhalation (rat): 570,000 ppm/ 15 minutes

Based upon the available data, the classification criteria are not met. Calculated acute toxicity estimate (ATE) LD50: > 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. Based upon the available data, the classification criteria are not met. Based upon the available data, the classification criteria are not met. There is no

evidence of mutagenic potential. Contains: < 0.1% butadiene

Based upon the available data, the classification criteria are not met. No

evidence of carcinogenicity. Contains: < 0.1% butadiene

Based upon the available data, the classification criteria are not met. No

evidence of reproductive effects.

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

This substance does not have endocrine disrupting properties with respect to

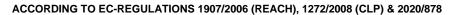
humans. None.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

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

Revision: 17th October 2024 Version: 5.2





BUTANE V8000

		LC50 (Fish): > 1000 mg/l/96h
12.2	Persistence and degradability	Bioconcentration factor (BCF): 1.57-1.97
12.3	Bioaccumulative potential	The product has low potential for bioaccumulation.
12.4	Mobility in soil	Not relevant, due to the form of the product.
		The product is a volatile substance, which may spread in the atmosphere
12.5	Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
12.6	Endocrine disrupting properties	This substance does not have endocrine disrupting properties with respect to
		non-target organisms.
12.7	Other adverse effects	None Known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1	Waste treatment methods	Disposal should be in accordance with local, state or national legislation. Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.
	Waste classification according to Directive 2008/98/EC (Waste Framework Directive)	EU Waste Codes: HP3
13.2	Additional information	Containers of this material may be hazardous when empty since they retain

Containers of this material may be hazardous when empty since they retain product residue. Do not pierce or burn, even after use.

14: TRANSPORT II	

444	UN acceptance of ID acceptance	ADR/RID	IMDG	IATA/ICAO
14.1	UN number or ID number	1011	1011	1011
14.2	UN proper shipping name	BUTANE	BUTANE	BUTANE
14.3	Transport hazard class(es)	2	2	2
14.4	Packing group	None assigned.	None assigned.	None assigned.
14.5	Environmental hazards	Not classified.	Not classified.	Not classified.
14.6	Special precautions for user	See Section: 2		
14.7	Maritime transport in bulk according to IMO	Not applicable	Not applicable	Not applicable
	instruments			
14.8	Additional information			
	Special Provisions	392, 652, 657, 662, 674		

SECTION 15: REGULATORY INFORMATION

15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture	
15.1.1	EU regulations	
	Authorisations and/or restrictions on use	None - Contains: <0.1% Butadiene
15.1.2	National regulations	
	Germany	Water hazard class: Not hazardous
15.2	Chemical Safety Assessment	A REACH chemical safety assessment (CSA) has been carried out. Exposure scenarios for these substances are not yet available in the supply chain

SECTION 16: OTHER INFORMATION

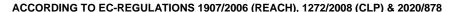
The following sections contain revisions or new statements: V5.2 - Please review SDS with care. Sections indicated with the following have been revised

References:

Existing Safety Data Sheet (SDS)

EU Harmonised Classification and Existing ECHA registration for BUTANE (CAS No. 106-97-8).

Revision: 17th October 2024 Version: 5.2





BUTANE V8000

EU Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2020/878

Legend

ATE Acute Toxicity Estimate
BCF Bioconcentration factor
CAS Chemical Abstracts Service
DNEL Derived no effect level
EC European Community
EN European Standard
EU European Union

IATA International Air Transport Association

ICAO/IATA ICAO: International Civil Aviation Organization / IATA: International Air Transport Association

IMDG International Maritime Dangerous Goods

Kd Partition Coefficient LC50 Lethal concentration 50

LD50 Lethal dose 50

LOAEL Lowest Observed Adverse Effect Level

LTEL Long term exposure limit

NOAEL No Observed Adverse Effect Level NOEC No Observed Effect Concentration

OECD Organisation for Economic Cooperation and Development

PBT Persistent, Bioaccumulative and Toxic
PNEC Predicted No Effect Concentration

REACH Registration, Evaluation, Authorisation and Restriction of Chemicals

STEL Short term exposure limit TWA Time Weighted Average

UN United Nations

vPvB very Persistent and very Bioaccumulative

Hazard classification / Classification code:

Flam. Gas 1, Flammable gas, Category 1

Gases under pressure

Hazard Statement(s)

H220: Extremely flammable gas.

H280: Contains gas under pressure; may explode if heated.

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.

Disclaimers

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Annex to the extended Safety Data Sheet (eSDS)

Exposure scenarios for these substances are not yet available in the supply chain