

SAFETY DATA SHEET



Revision: 3.1 Date: 10.06.2019

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 453/2010

Isobutane V4026a


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

- 1.1 Product identifier**
Product Name ISOBUTANE
Product Description V4026a-ISOBUTANE-ISOBUTANE
Trade Name ISOBUTANE
Product code ISOBUT
CAS No. 75-28-5
EC No. 200-857-2
REACH Registration No. -
- 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
P.O. Box 2056
1211 Geneva 1
Switzerland

Telephone +31 10 498 7200
Fax +31 10 452 9545
E-Mail (competent person) xreach@vitol.com
- 1.4 Emergency telephone number**
Emergency Phone No. +44 (0) 1235 239 670, 24/7
Languages 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)** Flam. Gas 1; H220
Liquefied gas; H280
Muta. 1B; H340
Carc. 1A; H350
- 2.1.2 Directive 67/548/EEC & Directive 1999/45/EC** F+R12: Extremely flammable.
Carc. Cat. 1; R45: May cause cancer.
Muta. Cat. 1; R46: May cause heritable genetic damage.
- 2.2 Label elements**
Product Description According to Regulation (EC) No. 1272/2008 (CLP)
V4026-ISOBUTANE-ISOBUTANE

Hazard Pictogram(s)

- Signal Word(s) Danger
- Hazard Statement(s) H220: Extremely flammable gas.
H280: Contains gas under pressure; may explode if heated.
H350: May cause cancer.
H340: May cause genetic defects.

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Precautionary Statement(s)

P201: Obtain special instructions before use.
P281: Use personal protective equipment as required.
P308+P313: IF exposed or concerned: Get medical advice/attention.
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.

2.3 Other hazards

May form explosive mixture with air. The vapour is heavier than air; beware of pits and confined spaces.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

SUBSTANCE	CAS No.	EC No.	%W/W
ISOBUTANE	75-28-5	200-857-2	100

SECTION 4: FIRST AID MEASURES



4.1 Description of first aid measures

Self-protection of the first aider

Eliminate sources of ignition. Wear appropriate personal protective equipment, avoid direct contact. If it is suspected that fumes are still present, the responder should wear an appropriate mask or self-contained breathing apparatus.

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): Frostbite (cold burn): Thaw frosted parts with lukewarm water. Do not rub affected area. Do not use hot water. Do not attempt to remove clothing that adheres to the skin due to freezing.

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. Do not use hot water. Obtain prompt consultation, preferably from an ophthalmologist.

Ingestion

Unlikely route of exposure. IF SWALLOWED: Rinse mouth. Do not give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Get medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed

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

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Treat cold burns as frostbite.

SECTION 5: FIREFIGHTING MEASURES

5.1 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.

Unsuitable extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Extremely flammable liquefied gas. 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

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- 5.3 **Advice for fire-fighters**
- than air and may travel considerable distances to a source of ignition and flashback.
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

- 6.1 **Personal precautions, protective equipment and emergency procedures**
- 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.
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.
Large spillages: Notify police and fire brigade as soon as possible. Stop leak if safe to do so. Use only non-sparking tools. Use explosion proof electrical equipment.
- 6.2 **Environmental precautions**
- Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be alerted to the Environment Agency or other appropriate regulatory body.
- 6.3 **Methods and material for containment and cleaning up**
- 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.
- 6.4 **Reference to other sections**
- See Section: 8,13

SECTION 7: HANDLING AND STORAGE

- 7.1 **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.
- 7.2 **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.
Stable at ambient temperatures.
Keep container tightly closed in a cool place.
- Storage temperature
Storage measures
Incompatible materials
- 7.3 **Specific end use(s)**
- Keep away from oxidising agents.
See Section: 1.2

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1 **Control parameters**
- 8.1.1 **Occupational Exposure Limits**
- None assigned.
- 8.1.2 **Biological limit value**
- Not established.
- 8.1.3 **PNECs and DNELs**
- DNEL: Not established.
PNEC: Not established.
- 8.2 **Exposure controls**




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8.2.1	Appropriate engineering controls	Ensure adequate ventilation. Guarantee that the eye flushing systems and safety showers are located close to the working place.
8.2.2	Individual protection measures, such as personal protective equipment (PPE)	Fuels are typically used, transferred and transported in closed systems. If exposure is likely (i.e. during sampling) the following advice may be appropriate.
	Eye/ face protection	Wear eye protection with side protection (EN166).
		
	Skin protection	Hand protection: Wear cold protection gloves (EN 511). Gloves should be changed regularly to avoid permeation problems. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.
		
	Respiratory protection	Body protection: Chemical protection suit.
		When the product is heated /In case of inadequate ventilation wear respiratory protection. The use of a high efficiency filter (EN143) is recommended. Filter type A1
	Thermal hazards	Closed system(s): Not normally required.
		Not applicable.
8.2.3	Environmental Exposure Controls	Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Liquefied gas
Odour	Sweet
Odour threshold	Odourless
pH	Not established.
Melting point/freezing point	- 159.6 °C
Initial boiling point and boiling range	< - 11 °C
Flash point	< - 20 °C
Evaporation rate	Not established.
Flammability (solid, gas)	Extremely flammable liquefied gas.
Upper/lower flammability or explosive limits	Flammable Limits (Lower) (%v/v) 1.9 Flammable Limits (Upper) (%v/v) 15
Vapour pressure	200 mm Hg @ 20 °C
Vapour density	> 2 (Air = 1)
Relative density	0.589 g/cm ³ @ 25 °C
Solubility(ies)	Water: Slightly soluble (0.1-100 mg/l)
Partition coefficient: n-octanol/water	1.09 @ 20 °C
Auto-ignition temperature	> 280 °C
Decomposition Temperature	Not established.
Viscosity	> 7.5 µPa·s @ 27 °C
Explosive properties	Not explosive.(Vapour may create explosive atmosphere.)
Oxidising properties	Not oxidising.

9.2 Other information None known.

SECTION 10: STABILITY AND REACTIVITY

10.1	Stability and reactivity	Stable under normal conditions. Reacts with - Strong oxidising agents
10.2	Chemical stability	Stable under normal conditions.
10.3	Possibility of hazardous reactions	Flammable liquid. Vapour may create explosive atmosphere.
10.4	Conditions to avoid	Keep away from heat, sources of ignition and direct sunlight.
10.5	Incompatible materials	Keep away from oxidising agents. Strong Acids and Alkalis. Halogens, metals
10.6	Hazardous decomposition product(s)	Decomposes in a fire giving off toxic fumes: Carbon monoxide, Carbon dioxide

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SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects	
Acute toxicity	Based upon the available data, the classification criteria are not met.
Ingestion	Not classified. Estimated LD50 > 5000 mg/kg bw/day (rat)
Inhalation	Not classified. LC50 4h > 13023 ppm mouse
Skin Contact	Not classified. Estimated LD50 > 2000 mg/kg bw/day (rabbit)
Skin corrosion/irritation	Based upon the available data, the classification criteria are not met.
	Frostbite (cold burn).
Serious eye damage/irritation	Based upon the available data, the classification criteria are not met.
	Frostbite (cold burn).
Respiratory or skin sensitization	Based upon the available data, the classification criteria are not met.
Germ cell mutagenicity	Muta. 1B; H340
Carcinogenicity	Carc. 1A; H350
Reproductive toxicity	Based upon the available data, the classification criteria are not met.
STOT - single exposure	Based upon the available data, the classification criteria are not met.
STOT - repeated exposure	Based upon the available data, the classification criteria are not met.
Aspiration hazard	Based upon the available data, the classification criteria are not met.
11.2 Other information	None known.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity	Based upon the available data, the classification criteria are not met.
	Estimated LD50 >100 mg/l
12.2 Persistence and degradability	Readily biodegradable.
12.3 Bioaccumulative potential	The product has low potential for bioaccumulation.
12.4 Mobility in soil	The product is predicted to have low mobility in soil.
12.5 Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
12.6 Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods	Dispose of this material and its container as hazardous waste (2008/98/EEC). 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. Containers must not be punctured or destroyed by burning, even when empty. Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company.
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SECTION 14: TRANSPORT INFORMATION

	ADR/RID	IMDG/ADN
14.1 UN number	UN1969	UN1969
14.2 Proper Shipping Name	ISOBUTANE	ISOBUTANE
14.3 Transport hazard class(es)	2	2 (2.1+CMR)
14.4 Packing group	-	-
14.5 Environmental hazards	MILIEUGEVAARLIJK / ENVIRONMENTALLY HAZARDOUS/ UMWELTGEFÄHREND /DANGEREUX POUR/ L'ENVIRONNEMENT	
14.6 Special precautions for user	See Section: 2	
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	This product is being carried under the scope of MARPOL Annex 1. Special Precautions: Refer to Chapter 7 'Handling and Storage' for special precautions which a user needs to be aware of, or needs to comply with, in connection with transport.	
14.8 Additional Information	ADR HIN: 23 Tunnel Restriction Code: 2 (B/D) Limited Quantity: 0	EmS: F-D, S-U Limited Quantity: 0

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SECTION 15: REGULATORY INFORMATION

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

15.1.1 EU regulations

Seveso

Upper Tier: 10 tonnes

Lower Tier: 50 tonnes

Annex XVII (Restrictions)

In accordance with REACH Annex XVII entry 30 (c) this substance is exempt from Entry 28 and 29 of REACH Annex XVII as it is to be sold as a fuel in a closed system.

15.1.2 National regulations

Germany

Wassergefährdungsklasse (Germany). WGK number: 0

15.2 Chemical Safety Assessment

This safety data sheet contains more than one ES in an integrated form. Contents of the exposure scenarios have been included into sections 1.2, 8, 9, 12, 15 and 16 of this safety data sheet.

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements:

Header and Section 1.3

References:

Existing ECHA registration(s) for ISOBUTANE (CAS No. 75-28-5) and Chemical Safety Report.

This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 453/2010.

LEGEND

LTEL	Long Term Exposure Limit
STEL	Short Term Exposure Limit
DNEL	Derived No Effect Level
PNEC	Predicted No Effect Concentration
PBT	PBT: Persistent, Bioaccumulative and Toxic
vPvB	very Persistent and very Bioaccumulative
OECD	Organisation for Economic Cooperation and Development

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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