

# SAFETY DATA SHEET



Revision: 24 March 2023 Version: 004

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

Isobutane V4026

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

<b>1.1 Product identifier</b>	
Product name	ISOBUTANE
Product description	V4026-ISOBUTANE-ISOBUTANE
Trade Name	ISOBUTANE
Product code	ISOBUT, V4026
CAS No.	75-28-5
EC No.	200-857-2
REACH Registration No.	Not applicable
<b>1.2 Relevant identified uses of the substance or mixture and uses advised against</b>	
Identified uses	Fuel for engines. Blend component.
Uses advised against	Anything other than the above.
<b>1.3 Details of the supplier of the safety data sheet</b>	
Company Identification	Vitol SA Place des Bergues 3 1201 Geneva Switzerland
Telephone	+31 10 498 7200
Fax	+31 10 452 9545
E-mail (competent person)	<a href="mailto:xreach@vitol.com">xreach@vitol.com</a>
<b>1.4 Emergency Telephone Number</b>	
Emergency Phone No.	+44 (0) 1235 239 670, 24/7
Language(s) spoken:	All official European languages.

## SECTION 2: HAZARDS IDENTIFICATION

<b>2.1 Classification of the substance or mixture</b>	
<b>2.1.1 Regulation (EC) No. 1272/2008 (CLP)</b>	Flam. Gas 1; H220 Gases under pressure; H280 Muta. 1B; H340 Carc. 1A; H350
<b>2.2 Label elements</b>	
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. H340: May cause genetic defects. H350: May cause cancer.
Precautionary Statement(s)	P201: Obtain special instructions before use. P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P280: Wear protective gloves/protective clothing/eye protection/face protection. P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

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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

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.

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

Ingestion

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

May cause genetic defects. May cause cancer. Drowsiness, Headache. Frostbite (cold burn). May cause eye irritation.

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

Notes to a physician:

Treat symptomatically. Do not attempt to remove clothing that adheres to the skin due to freezing  
IF INHALED: Administer oxygen if available and artificial respiration if necessary.

## 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. 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.

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## 5.3 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

### 6.1 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. Ensure suitable personal protection during removal of spillages.

Large spillages:

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.

Keep public away from danger area. Ground and bond container and receiving equipment. Eliminate sources of ignition. Contact of water with liquefied gas can result in boiling, frothing, and rapid generation of vapour. Isolate the area and allow vapours to disperse. Spills of this liquefied gas may form ice, which can plug drains and can make valves inoperable. Warn everybody – explosion hazard.

### 6.2 Environmental precautions

Avoid release to the environment. Do not allow to enter drains, sewers or watercourses. Vapours are heavier than air and may travel considerable distances to a source of ignition and flashback.

Large spillages:

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

Large spillages:

Evacuate the area and keep personnel upwind. Notify police and fire brigade as soon as possible.

### 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 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 the 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

Stable at ambient temperatures.

Storage measures

Keep container tightly closed in a cool place.

Incompatible materials

Keep away from: Strong oxidising agents, Strong acids, Alkalis, Oxygen, Nitrogen oxides, Sulphur dioxide, Chlorine, Hydrogen chloride, Hydrogen bromide.

### 7.3 Specific end use(s)

See Section: 1.2.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

<b>8.1</b>	<b>Control parameters</b>	
<b>8.1.1</b>	<b>Occupational exposure limits</b>	Not applicable
<b>8.1.2</b>	<b>Biological limit value</b>	Not established
<b>8.1.3</b>	<b>PNECs and DNELs</b>	Not established
<b>8.2</b>	<b>Exposure controls</b>	
<b>8.2.1</b>	<b>Appropriate engineering controls</b>	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.
<b>8.2.2</b>	<b>Individual protection measures, such as personal protective equipment</b>	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.

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 goggles giving complete protection to eyes to protect against liquid splashes (EN166).

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.  
Recommended: Nitrile rubber

Body protection: Wear suitable coveralls to prevent exposure to the skin.

Respiratory protection



In case of inadequate ventilation wear respiratory protection. The use of a high efficiency filter (EN143) is recommended. Filter type: A1  
A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

Closed system(s): Not normally required

Thermal hazards

Frostbite (cold burn).

<b>8.2.3</b>	<b>Environmental exposure controls</b>	Avoid release to the environment.
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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>9.1</b>	<b>Information on basic physical and chemical properties</b>	
	Physical state	Liquefied gas
	Colour	Not established
	Odour	Sweet
	Melting point/freezing point	-159.6 °C
	Boiling point or initial boiling point and boiling range	< - 11 °C
	Flammability	Extremely flammable liquefied gas
	Lower and upper explosion limit	Not established
	Flash point	< -20 °C

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Auto-ignition temperature	> 280 °C
Decomposition temperature	Not established
pH	Not applicable
Kinematic viscosity	> 7.5 µPa·s at 27 °C
Solubility	Water: slightly soluble (0.1-100 mg/l)
Partition coefficient: n-octanol/water (log value)	1.09 at 20 °C
Vapour pressure	200 mm Hg at 20 °C
Density and/or relative density	0.589 g/cm <sup>3</sup> at 25 °C
Relative vapour density	> 2 (Air = 1)
Particle characteristics	Not established

<b>9.2 Other information</b>	Vapour may create explosive atmosphere.
Flammable Limits (Lower) (%v/v)	1.9
Flammable Limits (Upper) (%v/v)	15

## SECTION 10: STABILITY AND REACTIVITY

<b>10.1 Reactivity</b>	Stable under normal conditions. Reacts with - Strong oxidising agents
<b>10.2 Chemical stability</b>	Stable under normal conditions
<b>10.3 Possibility of hazardous reactions</b>	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.
<b>10.4 Conditions to avoid</b>	Keep away from heat, sources of ignition and direct sunlight.
<b>10.5 Incompatible materials</b>	Keep away from: Strong oxidising agents, Strong acids, Alkalis, Oxygen, Nitrogen oxides, Sulphur dioxide, Chlorine, Hydrogen chloride, Hydrogen bromide.
<b>10.6 Hazardous decomposition products</b>	Decomposes in a fire giving off toxic fumes: Carbon monoxide, Carbon dioxide.

## SECTION 11: TOXICOLOGICAL INFORMATION

<b>11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008</b>	
<b>Acute toxicity - Ingestion</b>	Based upon the available data, the classification criteria are not met. No data available: Data technically impossible to obtain.
<b>Acute toxicity - Inhalation</b>	Based upon the available data, the classification criteria are not met. LC50 (rat) 15min >800000 ppm (Unnamed, 1982)
<b>Acute toxicity - Skin contact</b>	Based upon the available data, the classification criteria are not met. No data available: Data technically impossible to obtain.
<b>Skin corrosion/irritation</b>	Based upon the available data, the classification criteria are not met. No data available: Data technically impossible to obtain.
<b>Serious eye damage/irritation</b>	Based upon the available data, the classification criteria are not met. No data available: Data technically impossible to obtain.
<b>Respiratory or skin sensitisation</b>	Based upon the available data, the classification criteria are not met. No data available: Data technically impossible to obtain.
<b>Germ cell mutagenicity</b>	Muta. 1B; May cause genetic defects.
<b>Carcinogenicity</b>	Harmonised Classification Carc. 1A; May cause cancer. Harmonised Classification No data available
<b>Reproductive toxicity</b>	Based upon the available data, the classification criteria are not met. Reproductive toxicity: No adverse effect observed NOAEL (rat) 10000 ppm (OECD 413) Developmental toxicity: No observed fetotoxicity, viability or teratogenicity NOAEC (rat) 1000 ppm (OECD 414)
<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.
Oral	No data available
Inhalation	No adverse effect observed (rat) (OECD 413) NOAEC 1000 ppm
Dermal	No data available

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

**11.2 Information on other hazards**

**11.2.1 Endocrine disrupting properties** This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

**11.2.2 Other information** None known

## SECTION 12: ECOLOGICAL INFORMATION

**12.1 Toxicity** Based upon the available data, the classification criteria are not met.  
Short Term (acute) LC50 (Fish): 49.9 mg/l ((Q)SAR) ECHA registration dossier  
Long term (chronic) No data available

**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. None of the substances in this product fulfil the criteria for being regarded as a PBT or vPvB substance.

**12.6 Endocrine disrupting properties** This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

**12.7 Other adverse effects** None known

## SECTION 13: DISPOSAL CONSIDERATIONS

**13.1 Waste treatment methods** 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. 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.

Waste classification according to Directive 2008/98/EC (Waste Framework Directive) HP3, HP7, HP11

## SECTION 14: TRANSPORT INFORMATION

	<b>ADR/RID</b>	<b>IMDG/ADN</b>
<b>14.1 UN number or ID number</b>	UN1969	UN1969
<b>14.2 UN proper shipping name</b>	ISOBUTANE	ISOBUTANE
<b>14.3 Transport hazard class(es)</b>	2	2 (2.1+CMR)
<b>14.4 Packing group</b>	None assigned	None assigned
<b>14.5 Environmental hazards</b>	Not classified	Not classified as a Marine Pollutant.
<b>14.6 Special precautions for user</b>	See Section: 2	
<b>14.7 Maritime transport in bulk according to IMO instruments</b>	No information available.	No information available.
<b>14.8 Additional information</b>	ADR HIN: 23 Tunnel restriction code: 2 (B/D) Limited Quantity: 0 Special Provisions: 657, 660, 662	EmS: F-D, S-U Limited Quantity: 0

## SECTION 15: REGULATORY INFORMATION

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

**15.1.1 EU regulations**  
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.

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Upper Tier: 10 tonnes

Lower Tier: 50 tonnes

## 15.1.2 National regulations

Germany

Water hazard class: 1

## 15.2 Chemical Safety Assessment

A chemical safety assessment is not required under REACH.

## SECTION 16: OTHER INFORMATION

**The following sections contain revisions or new statements:** New SDS Regulation 2020/878 format, all sections have been updated to include new information. Please review SDS with care.

### References:

Existing Safety Data Sheet (SDS)

Harmonised Classification(s) for ISOBUTANE (CAS No. 75-28-5).

Existing ECHA registration(s) for ISOBUTANE (CAS No. 75-28-5).

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

### Legend

ADR	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS	Chemical Abstracts Service
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DNEL	Derived no effect level
EC	European Community
ECHA	European Chemicals Agency
EU	European Union
IATA	IATA: International Air Transport Association
ICAO	ICAO: International Civil Aviation Organization
IMDG	IMDG: International Maritime Dangerous Goods
LC50	Lethal Concentration at which 50% of the population is killed
NOAEC	No Observed Adverse Effect Concentration
OECD	Organisation for Economic Cooperation and Development
PBT	PBT: Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	RID: Regulations concerning the international railway transport of dangerous goods
UN	United Nations
vPvB	vPvB: very Persistent and very Bioaccumulative

### Hazard classification / Classification code:

Flam. Gas. 1; Flammable gas., Category 1

Press. Gas; Pressurised gas

Muta. 1B; Germ cell mutagenicity, Category 1B

Carc. 1A; Carcinogenicity, Category 1A

### Hazard Statement(s)

H220: Extremely flammable gas.

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

H340: May cause genetic defects.

H350: May cause cancer.

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)

Not applicable