

SAFETY DATA SHEET



Revision: 24 March 2023 Version: 004

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

ISOBUTANE

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

1.1 Product identifier	
Product name	ISOBUTANE
Product description	V8001a- ISOBUTANE- ISOBUTANE
Trade Name	ISOBUTANE
Product code	ISOBUT
CAS No.	75-28-5
EC No.	200-857-2
REACH Registration No.	Not applicable
1.2 Relevant identified uses of the substance or mixture and uses advised against	
Identified uses	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
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
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)	Flam. Gas 1; H220 Gases under pressure; H280
2.2 Label elements	
Product description	According to Regulation (EC) No. 1272/2008 (CLP) 8001a- 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.
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.
2.3 Other hazards	Gases under pressure: Compressed gas / Refrigerated liquefied gas / Compressed dissolved gas

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

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

SUBSTANCE	CAS No.	EC No.	%W/W
Isobutane (<0.1% butadiene)	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.

Inhalation

IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If irritation develops and persists, get medical attention.

Skin contact

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.

Eye contact

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.

Ingestion

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.

4.2 Most important symptoms and effects, both acute and delayed

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

4.3 Indication of any immediate medical attention and special treatment needed

Unlikely to be required but if necessary treat symptomatically. Do not attempt to remove clothing that adheres to the skin due to freezing

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Foam, CO2 or dry powder

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. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Vapour may create explosive atmosphere. The vapour is heavier than air; beware of pits and confined spaces. Combustion or thermal decomposition will evolve very toxic, irritant and flammable vapours. Hazardous decomposition products: Carbon monoxide, Carbon dioxide, Aldehydes, Ketones, Hydrogen, Methane, A mixture of solid and liquid particulates and gases including unidentified organic and inorganic compounds.

Compressed gas

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

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.

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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 | Shut off source of leak if safe to do so. Eliminate all ignition sources if safe to do so. Ensure adequate ventilation. Do not breathe vapour. Stay upwind/keep distance from source. In case of inadequate ventilation wear respiratory protection. Avoid all contact. Wear suitable protective clothing. Contaminated clothing should be thoroughly cleaned. 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 clean-up operations. |
| 6.2 | Environmental precautions | 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. |
| 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. |
| | Small scale: | 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. |
| | Large scale: | 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. |
| 6.4 | Reference to other sections | See Section: 8, 13. |

SECTION 7: HANDLING AND STORAGE

- | | | |
|------------|---|---|
| 7.1 | Precautions for safe handling | 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. Do not breathe vapour. Avoid all contact. Wash hands and exposed skin thoroughly after handling. Do not eat, drink or smoke at the work place. Wash contaminated clothing before reuse. |
| 7.2 | Conditions for safe storage, including any incompatibilities | 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. |
| | Storage temperature | Keep cool. Keep away from heat and sources of ignition. |
| | Incompatible materials | Strong oxidising agents |
| 7.3 | Specific end use(s) | See Section: 1.2. |

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- | | | |
|--------------|---|---|
| 8.1 | Control parameters | |
| 8.1.1 | Occupational exposure limits | Not applicable |
| 8.1.2 | Biological limit value | Not established |
| 8.1.3 | PNECs and DNELs | Not established |
| 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, well-ventilated (dry) place away from heat and ignition sources. |

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8.2.2 Individual protection measures, such as personal protective equipment 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).

Skin protection



Hand protection: Wear impervious gloves (EN374). Breakthrough time of the glove material: refer to the information provided by the gloves' producer.

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

Respiratory protection



In case of inadequate ventilation wear respiratory protection. Recommended: BS EN 14387:2004+A1

Thermal hazards

Frostbite (cold burn).

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

Physical state	Liquefied gas
Colour	Colourless
Odour	Sweet
Melting point/freezing point	-159.6 °C
Boiling point or initial boiling point and boiling range	< - 11.6 °C
Flammability	Extremely flammable gas.
Lower and upper explosion limit	Not established
Flash point	< -20 °C
Auto-ignition temperature	410 - 550 °C
Decomposition temperature	Not established
pH	Not applicable
Kinematic viscosity	Not established
Solubility	Water: 0.054 g/l at 20°C
Partition coefficient: n-octanol/water (log value)	Log Pow: 2.36-2.9
Vapour pressure	>210,000 pascal at 20°C
Density and/or relative density	Not established
Relative vapour density	2.007
Particle characteristics	Not established

9.2 Other information

Flammable Limits (Lower) (%v/v)	1.9	Vapour may create explosive atmosphere.
Flammable Limits (Upper) (%v/v)	15	

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity	Stable under normal conditions.
10.2 Chemical stability	Stable under normal conditions
10.3 Possibility of hazardous reactions	Vapour is explosive in air at temperatures higher than the flash point. Vapour is explosive in air at temperatures higher than the flash point.
10.4 Conditions to avoid	Keep away from heat, sources of ignition and direct sunlight.

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10.5	Incompatible materials	Keep away from: Strong oxidising agents
10.6	Hazardous decomposition products	Combustion products: Carbon monoxide, Carbon dioxide, Aldehydes, Ketones, Hydrogen, Methane, A mixture of solid and liquid particulates and gases including unidentified organic and inorganic compounds.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1	Information on hazard classes as defined in Regulation (EC) No 1272/2008	
	Acute toxicity - Ingestion	Based upon the available data, the classification criteria are not met. No data available: Data technically impossible to obtain.
	Acute toxicity - Inhalation	Based upon the available data, the classification criteria are not met. LC50 (rat) 15min >800000 ppm (Unnamed, 1982)
	Acute toxicity - Skin contact	Based upon the available data, the classification criteria are not met. No data available: Data technically impossible to obtain.
	Skin corrosion/irritation	Based upon the available data, the classification criteria are not met. No data available: Data technically impossible to obtain.
	Serious eye damage/irritation	Based upon the available data, the classification criteria are not met. No data available: Data technically impossible to obtain.
	Respiratory or skin sensitisation	Based upon the available data, the classification criteria are not met. No data available: Data technically impossible to obtain.
	Germ cell mutagenicity	Based upon the available data, the classification criteria are not met.
	Carcinogenicity	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
	Reproductive toxicity	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)
	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.
		Oral No data available
		Inhalation No adverse effect observed (rat) (OECD 413) NOAEC 1000 ppm
		Dermal No data available
	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

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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)	HP3

SECTION 14: TRANSPORT INFORMATION

	ADR/RID	IMDG/ADN
14.1 UN number or ID number	UN1969	UN1969
14.2 UN proper shipping name	ISOBUTANE	ISOBUTANE
14.3 Transport hazard class(es)	2	2
14.4 Packing group	None assigned	None assigned
14.5 Environmental hazards	Not classified	Not classified as a Marine Pollutant.
14.6 Special precautions for user	See Section: 2	
14.7 Maritime transport in bulk according to IMO instruments	No information available.	No information available.
14.8 Additional information	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	Authorisations and/or restrictions on use
15.1.2 National regulations	Germany
15.2 Chemical Safety Assessment	
	Not restricted - Contains: <0.1% butadiene
	Water hazard class: 3
	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

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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

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.

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Annex to the extended Safety Data Sheet (eSDS)

Not applicable