



Isobutane

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878
Issue date: 12/12/2006 Revision date: 12/12/2022 Version: 5.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Chemical type : Substance
Trade name : Isobutane
Trade name : Isobutane
EC Index-No. : 601-004-00-0
EC-No. : 200-857-2
CAS-No. : 75-28-5
REACH registration No : 01-2119485395-27-0020
Product code : 221111090000
IUPAC name : isobutane
Formula : C₄H₁₀
Synonyms : I-BUTAN

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

1.2.1. Relevant identified uses

Main use category : Industrial use, Professional use, Consumer use
Industrial/Professional use spec : Manufacture of substance
Polymer processing
Polymer production
Use as a fuel
Functional Fluids
Formulation & (re)packing of substances and mixtures
Blowing agents
Distribution of substance
Use as a propellant
Function or use category : Aerosol propellants, Fuels, Intermediates

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

SLOVNAFT, a.s. a.s.
Vlčie hrdlo 1
SK- 824 12 Bratislava
Slovakia
T +421-(0)2/4055-1111 - F +421-(0)2/5859-9759
info@slovnaft.sk - www.slovnaft.sk

1.4. Emergency telephone number

Emergency number : Podnikový dispečing 1: ++0421(0)2/4055 3344

Country	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals- 24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	

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Country	Organisation/Company	Address	Emergency number	Comment
Israel	Israel Poison Information Center Rambam Health Care Campus	6 Ha'Aliya Street 31096 Haifa	+972 4 854 1900	
Malta	Medicines & Poisons Info Office	Mater Dei Hospital MSD 2090 Msida	+356 2545 6508	
United Kingdom	National Poisons Information Service (Belfast Centre) Royal Victoria Hospital	Grosvenor Road BT12 6BA Belfast	0344 892 0111	Only for healthcare professionals
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH Birmingham	0344 892 0111	Only for healthcare professionals
United Kingdom	National Poisons Information Service (Cardiff Centre) University Hospital Llandough	Penlan Road CF64 2XX Cardiff	0344 892 0111	Only for healthcare professionals
United Kingdom	National Poisons Information Service (Edinburgh Centre) Royal Infirmary of Edinburgh	Little France Crescent EH16 4SA Edinburgh	0344 892 0111	Only for healthcare professionals
United Kingdom	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust	Avonley Road SE14 5ER London	+44 20 7188 7188	
United Kingdom	National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre	16/17 Framlington Place Newcastle-upon-Tyne NE2 4AB Newcastle	0344 892 0111	Only for healthcare professionals

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable gases, Category 1A H220

Gases under pressure : Liquefied gas H280

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS02

GHS04

Signal word (CLP)

: Danger

Hazard statements (CLP)

: H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.

Precautionary statements (CLP)

: P102 - Keep out of reach of children.
P210 - Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P243 - Take precautionary measures against static discharge.
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.

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2.3. Other hazards

Contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

Endocrine disruptors: not yet evaluated

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type	: Mono-constituent
Name	: SN / 200-857-2 / isobutane
CAS-No.	: 75-28-5
EC-No.	: 200-857-2
EC Index-No.	: 601-004-00-0

Name	Product identifier	%
Isobutane	CAS-No.: 75-28-5 EC-No.: 200-857-2 EC Index-No.: 601-004-00-0 REACH-no: 01-2119485395-27	> 80
butane (Impurity)	CAS-No.: 106-97-8 EC-No.: 203-448-7 EC Index-No.: 601-004-00-0 REACH-no: 01-2119474691-32	< 19.5
propane (Impurity)	CAS-No.: 74-98-6 EC-No.: 200-827-9 EC Index-No.: 601-003-00-5 REACH-no: 01-2119486944-21	< 3.5

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Extremely flammable liquefied gas. An asphyxiant at high concentrations, oxygen depletion can be fatal. Contact with product in liquid form may cause frostbite. Before attempting to rescue casualties, isolate area from all potential sources of ignition including disconnecting electrical supply. Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces. Take care to self-protect by avoiding becoming contaminated. Use approved positive pressure air supplied breathing apparatus with a full facepiece. Move contaminated patient(s) out of the dangerous area. Seek medical assistance -. show the material safety data sheet or label if possible.
First-aid measures after inhalation	: Remove casualty to fresh air as quickly as possible. Do not leave the victim unattended. Keep warm and at rest. Place in the recovery position. Seek immediate medical attention. If breathing is difficult, give oxygen if possible, or assisted ventilation. In the event of cardiac arrest, (no pulse), apply cardiopulmonary resuscitation.
First-aid measures after skin contact	: Do not remove clothing that adheres due to freezing. Immediately flush affected area with plenty of water. continue for at least 15 minutes. If there are signs of frostbite, (blanching or redness of skin or burning or tingling sensation), do not rub, massage or compress the affected area. Send the casualty immediately to hospital.
First-aid measures after eye contact	: Remove contact lenses, if present and easy to do so. Irrigate eyes with copious amounts of water for at least 10-15 min, holding eyelids apart to ensure thorough rinsing. If there are signs of frostbite, pain, swelling, lachrimation or photophobia persists, or in case of damage from high pressure jets, the patient should be seen in a specialist health care facility.

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First-aid measures after ingestion : Not considered a likely route of exposure – frostbite to the lips and mouth may occur if in contact with the liquid.

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

Symptoms/effects after inhalation : Exposure to high concentrations may cause asphyxiation as a consequence of oxygen deficiency.
Symptoms/effects after skin contact : Contact with product in liquid form may cause frostbite.
Symptoms/effects after eye contact : Contact with product in liquid form may cause frostbite.

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

A simple asphyxiant gas at normal temperatures and pressures. There is no specific antidote. In the event of contact with product in liquid form treat for frostbite.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water fog (trained personnel only). Dry chemical powder. Carbon dioxide. Foam (trained personnel only). Sand or earth.
Unsuitable extinguishing media : Do not use direct water jets on the burning product. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

5.2. Special hazards arising from the substance or mixture

No additional information available

5.3. Advice for firefighters

No additional information available

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : a Self Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure.
Emergency procedures : Spillages of product generate large volumes of extremely flammable gas which is heavier than air and will accumulate in low areas. When the presence of dangerous amounts of H₂S around the spilled product is suspected or proved, additional or special actions may be warranted, including access restrictions, use of special protection equipment, procedures and personnel training. Stop or contain leak at the source, if safe to do so. Avoid direct contact with released material. Stay upwind. Keep non-involved personnel away from the area of spillage. Alert emergency personnel. Enter area only if strictly necessary. A combustible gas detector can be used to check for flammable gas or vapors. Eliminate all ignition sources if safe to do so (e.g. electricity, sparks, fires, flares). If required, notify relevant authorities according to all applicable regulations.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Stop leak if safe to do so. Spillages of product generate large volumes of extremely flammable gas which is heavier than air and will accumulate in low areas. Ensure adequate ventilation of confined spaces, especially underground ones. Spillages of liquid product in the water will likely result in a quick and complete vaporization of the product. Isolate the area and prevent fire/explosion hazard for ships and other structures, taking into account wind direction and speed, until the product is completely dispersed. Prevent product from entering sewers, rivers or other bodies of water, or underground spaces (tunnels, cellars, etc.).

6.3. Methods and material for containment and cleaning up

Other information : Use only non-sparking tools.

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6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Risk of explosive mixtures of vapour and air. A specific assessment of inhalation risks from the presence of H₂S in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases must be made to help determine controls appropriate to local circumstances. Consider technical advances and process upgrades (including automation) for the elimination of releases. Clean/flush equipment, where possible, prior to maintenance. Consider the need for risk based health surveillance. Regularly inspect, test and maintain all control measures. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid all sources of ignition, oxidising agents, chlorine and hydrogen chloride or hydrogen fluoride. Take precautionary measures against static electricity. Cleaning, inspection and maintenance of internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations. Handle empty containers with care; vapour residue may be flammable. Do not weld, solder, drill, cut or perform similar operations on or near containers. Dispose of rinse water in accordance with local and national regulations. The vapour is heavier than air. Beware of accumulation in pits and confined spaces. Use piping and equipment designed to withstand the pressures to be encountered. Use a check valve or other protective device to prevent reverse flow. Ensure that all relevant regulations regarding handling and storage facilities of flammable products are followed.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Do not eat, drink or smoke when using this product. For maintenance work or conservation, emptied tanks should be purged, and blanketed with inert gas (i.e. nitrogen).

Storage conditions : To stored only in supplied cylinders or approved vessels. Cylinders should be secured vertical - and only transported in a secure position in a well ventilated vehicle or hand truck. Cylinders which have been are opened must be carefully resealed and kept upright.

Storage area : Store in a designated cool and well-ventilated place.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

DNEL : DNEL cannot be derived due to absence of adverse effect relevant to humans
PNEC : not applicable

8.1.5. Control banding

No additional information available

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8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station. Do not enter empty storage tanks until measurements of available oxygen have been carried out. Ensure control measures are regularly inspected and maintained.

8.2.2. Personal protection equipment

Personal protective equipment:

Gloves. Protective goggles.

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Safety glasses. Face shield

8.2.2.2. Skin protection

Skin and body protection:

Protective clothing. Electrostatic properties (EN 1149-1). For loading/unloading operations: wear safety helmet, if necessary integrated full face visor

Hand protection:

Protective gloves made of PVC

Other skin protection

Materials for protective clothing:

Protective clothing. Clothing to protect against heat and flame (EN 11612)

8.2.2.3. Respiratory protection

Respiratory protection:

If there is a possibility of long-term exposure, type A respirator is recommended to use.

8.2.2.4. Thermal hazards

Thermal hazard protection:

None in normal conditions.

8.2.3. Environmental exposure controls

Environmental exposure controls:

Use vapour recovery units when necessary.

Consumer exposure controls:

Site documentation to support safe handling arrangements including the selection of engineering, administrative and personal protective equipment controls in accordance with risk-based management systems is available at each manufacturing site.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Gas
Colour	: Colourless.
Odour	: odourless.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: - 159.4 °C
Freezing point	: No data available
Boiling point	: - 11.7 °C
Flash point	: - 83 °C

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Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20°C	: 2.01
Relative density	: No data available
Density	: 2.51 kg/m ³ at 15°C
Solubility	: Water: 48.9 mg/l at 25°C
Partition coefficient n-octanol/water (Log Pow)	: No data available
Partition coefficient n-octanol/water (Log Kow)	: 1.09 – 2.8
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 1.8 – 8.3 vol %

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

This substance is stable under all ordinary circumstances at ambient temperatures, and if released into the environment.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Contact with strong oxidizers (peroxides, chromates, etc.) may cause a fire hazard.

10.4. Conditions to avoid

They may be ignited by heat, sparks, static electricity or flames.

10.5. Incompatible materials

A mixture with nitrates or other strong oxidisers (e.g. chlorates, perchlorates, liquid oxygen) may create an explosive mass.

10.6. Hazardous decomposition products

Combustion (incomplete) will likely generate oxides of carbon, sulphur and nitrogen, as well as additional undetermined organic compounds of the same elements.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Isobutane (75-28-5)	
LC50 Inhalation - Rat	1237 mg/l
LC50 Inhalation - Rat [ppm]	520400 ppm

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified

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Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified

Isobutane (75-28-5)	
LC50 - Fish [1]	27.98 mg/l (Q)SAR
EC50 - Crustacea [1]	16.33 mg/l (Q)SAR
EC50 - Other aquatic organisms [1]	8.57 mg/l (Q)SAR

12.2. Persistence and degradability

Isobutane (75-28-5)	
Persistence and degradability	Product is biodegradable.

12.3. Bioaccumulative potential

Isobutane (75-28-5)	
Partition coefficient n-octanol/water (Log Kow)	1.09 – 2.8
Bioaccumulative potential	Does not accumulate in organisms.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Isobutane (75-28-5)	
Results of PBT assessment	Isobutane is not considered PBT or vPvB

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	: DIRECTIVE 2008/98/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 November 2008 on waste and repealing certain Directives.
Waste treatment methods	: Contain and dispose of waste according to local regulations.
Sewage disposal recommendations	: Not applicable as there is no release to wastewater. Soil emission controls are not applicable as there is no direct release to soil.
Waste disposal recommendations	: Clear up spills immediately and dispose of waste safely. Wastewater emission controls are not applicable as there is no direct release to wastewater. Dispose of waste or used sacks/containers according to local regulations.




SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

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ADR	RID	ADN	IMDG	IATA
14.1. UN number				
1969	1969	1969	1969	1969
14.2. UN proper shipping name				
ISOBUTANE	ISOBUTANE	ISOBUTANE	ISOBUTANE	ISOBUTANE
14.3. Transport hazard class(es)				
2.1 	2.1 	2.1	2.1	2.1 
14.4. Packing group				
Not applicable			Not applicable	
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No
14.6. Special precautions for user				
2F	2F	2F		
No supplementary information available				

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Not listed on REACH Annex XVII

Not listed on the REACH Candidate List

Not listed on REACH Annex XIV (Authorisation List)

Not listed on the PIC list (Regulation EU 649/2012)

Not listed on the POP list (Regulation EU 2019/1021)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures (CLP)

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Germany

Water hazard class (WGK) : WGK nwg, Non-hazardous to water (Classification according to AwSV; ID No. 562)

Hazardous Incident Ordinance (12. BImSchV) : Is not subject of the Hazardous Incident Ordinance (12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

SZW-lijst van reprotoxische stoffen – Borstvoeding : The substance is not listed

SZW-lijst van reprotoxische stoffen – Vruchtbaarheid : The substance is not listed

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SZW-lijst van reprotoxische stoffen – Ontwikkeling : The substance is not listed

Denmark

Class for fire hazard : Class III-1

Store unit : 50 liter

Classification remarks : Flammable according to the Danish Ministry of Justice; Emergency management guidelines for the storage of flammable liquids must be followed

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

Switzerland

Storage class (LK) : LK 2 - Liquefied or pressurized gases

15.2. Chemical safety assessment

A chemical safety assessment has been carried out

SECTION 16: Other information

Data sources : LOA registration dossier.

Training advice : Before handling, storing or using the present substance for the first time, employees must be informed.

Full text of H- and EUH-statements:	
Flam. Gas 1A	Flammable gases, Category 1A
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
Press. Gas (Liq.)	Gases under pressure : Liquefied gas

SDS EU (REACH Annex II) MOL

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.