

# Isobutane

## Safety Data Sheet

according to Regulation (EU) 2015/830



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

#### 1.1. Product identifier

Substance name : Isobutane  
EC Index-No. : 601-004-00-0  
EC-No. : 200-857-2  
CAS-No. : 75-28-5  
Formula : C<sub>4</sub>H<sub>10</sub>  
Synonyms : 2-Methylpropane / Propane, 2-methyl- / ISOBUTANE / Butane

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

##### 1.2.1. Relevant identified uses

Main use category : Used to synthesize isooctane, isobutylene, propylene, methacrylic acid, to improve Gasoline octane number, used as a refrigerant, etc.

##### 1.2.2. Uses advised against

Restrictions on use : No information available

#### 1.3. Details of the supplier of the safety data sheet

Supplier : Hefei ZhiYou Trading Co., Ltd.  
Address : Hefei innovation pioneer park (lotus road and jade screen road jiaokou east 200 meters) north gate area 1B  
Tel : +86-0551-65666313  
Fax : +86-0551-65666317  
E-mail : [121289237@qq.com](mailto:121289237@qq.com)

#### 1.4. Emergency telephone number

+86-17701633992

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

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

Flammable gases, Category 1 H220

Gases under pressure Liquefied gas H280

Full text of H statements : see section 16

##### Adverse physicochemical, human health and environmental effects

Suspected of damaging fertility or the unborn child. Causes serious eye damage.

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### 2.2. Label elements

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

Hazard pictograms (CLP) :



GHS04

GHS02

Signal word (CLP) :

Danger

Hazard statements (CLP) :

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

Precautionary statements (CLP) :

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 - In case of leakage, eliminate all ignition sources.  
P410+P403 - Protect from sunlight. Store in a well-ventilated place.

### 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Isobutane	(CAS-No.) 75-28-5 (EC-No.) 200-857-2 (EC Index-No.) 601-004-00-0	≥99.5	Flam. Gas 1, H220 Press. Gas, H280

Full text of H-statements: see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. Give oxygen or artificial respiration if necessary. Call a poison center or a doctor if you feel unwell.
First-aid measures after skin contact	: If frostbite occurs: Soak the affected area in warm water maintained at 38-42 °C. Do not rub. Do not use hot water or radiant heat. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum). Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell. Rinse mouth out with water. Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice

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

No additional information available

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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	: Water spray, dry powder, carbon dioxide, or foam.
Unsuitable extinguishing media	: No information available.

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### 5.2. Special hazards arising from the substance or mixture

- Fire hazard : Flammable gas, mixed with air, can form an explosive mixture, and there is a danger of burning and exploding in case of heat and open flame. Contact with oxidant reacts violently. Vapor is heavier than air, spreads along the ground and tends to accumulate in low-lying areas, and will ignite in case of fire.
- Hazardous decomposition products in case of fire : Toxic fumes may be released.

### 5.3. Advice for firefighters

- Precautionary measures fire : Ensure adequate ventilation, especially in confined areas. Keep container tightly closed and away from heat, sparks and flame.
- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
- Other information : Cut off the air supply. If the gas source cannot be cut off, it is not allowed to extinguish the flame at the leak. Cool tanks/drums with water spray/remove them into safety. Evacuate personnel to a safe area. Keep upwind.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

- Emergency procedures : Ventilate spillage area. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Ensure adequate ventilation, especially in confined areas. Keep away from ignition sources.

#### 6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection". Wear anti-static clothing. All equipment used in the operation should be grounded.
- Emergency procedures : Stop leak if safe to do so. Remove all sources of ignition. Evacuate unnecessary personnel.

### 6.2. Environmental precautions

Prevent gas from diffusing through sewers, ventilation systems and restrictive spaces. Isolate the leak area until the gas is exhausted.

### 6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : In the absence of a cut off source, it is not allowed to extinguish the source of the fire. Cut off the source of the leak as much as possible. Use industrial cover or adsorption/absorbent to cover small waterways and other places near the leakage point to prevent gas from entering, reasonable ventilation, accelerated diffusion, dilution and dissolution of spray water, and construction of a large amount of wastewater generated by dikes or digging pits, such as It is possible to send the leaking gas to the open space with an exhaust fan or to install an appropriate nozzle to burn it. The gas leakage should be properly disposed of, repaired and inspected before use.
- Other information : Spray water inhibits the vapor or changes the flow of the vapor cloud, preventing the water from contacting the spill.

### 6.4. Reference to other sections

See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for information on disposal

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

- Precautions for safe handling : Closed operation, full ventilation. Operators must be specially trained to strictly follow the operating procedures. It is recommended that operators wear anti-static overalls. Keep away from fire, heat, and smoking in the workplace. Use explosion-proof ventilation systems and equipment. Prevent gas from leaking into the workplace air. Avoid contact with strong oxidizing agents, strong acids, strong bases, halogens. Cylinders and containers must be grounded and bridged during transfer to prevent static buildup. Lightly load and unload during handling to prevent damage to cylinders and accessories. Equipped with the corresponding variety and quantity of fire-fighting equipment and leakage emergency treatment equipment.
- Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

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### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

: Store in a cool, ventilated flammable gas special warehouse. Keep away from fire and heat. The temperature should not exceed 30 °C. Should be stored separately with strong oxidants, strong acids, strong bases, halogens, avoid mixing. Explosion-proof lighting and ventilation facilities are used. It is forbidden to use mechanical equipment and tools that are prone to sparks. The storage area should be equipped with leakage emergency treatment equipment.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Isobutane (75-28-5)		
Austria	MAK (mg/m <sup>3</sup> )	1900 mg/m <sup>3</sup>
Austria	MAK (ppm)	800 ppm
Austria	MAK Short time value (mg/m <sup>3</sup> )	3800 mg/m <sup>3</sup>
Austria	MAK Short time value (ppm)	1600 ppm
Belgium	Limit value (ppm)	1000 ppm (gas)
Estonia	OEL TWA (mg/m <sup>3</sup> )	1900 mg/m <sup>3</sup>
Estonia	OEL TWA (ppm)	800 ppm
Finland	HTP-arvo (8h) (mg/m <sup>3</sup> )	1900 mg/m <sup>3</sup>
Finland	HTP-arvo (8h) (ppm)	800 ppm
Finland	HTP-arvo (15 min)	2400 mg/m <sup>3</sup>
Finland	HTP-arvo (15 min) (ppm)	1000 ppm
Germany	TRGS 900 Occupational exposure limit value (mg/m <sup>3</sup> )	2400 mg/m <sup>3</sup>
Germany	TRGS 900 Occupational exposure limit value (ppm)	1000 ppm
Slovenia	OEL TWA (mg/m <sup>3</sup> )	2400 mg/m <sup>3</sup>
Slovenia	OEL TWA (ppm)	1000 ppm
Slovenia	OEL STEL (mg/m <sup>3</sup> )	9600 mg/m <sup>3</sup>
Slovenia	OEL STEL (ppm)	4000 ppm
Switzerland	MAK (mg/m <sup>3</sup> )	1900 mg/m <sup>3</sup>
Switzerland	MAK (ppm)	800 ppm
Switzerland	KZGW (mg/m <sup>3</sup> )	7600 mg/m <sup>3</sup>
Switzerland	KZGW (ppm)	3200 ppm
USA - ACGIH	ACGIH STEL (ppm)	1000 ppm (explosion hazard)
USA - NIOSH	NIOSH REL (TWA) (mg/m <sup>3</sup> )	1900 mg/m <sup>3</sup>
USA - NIOSH	NIOSH REL (TWA) (ppm)	800 ppm

### 8.2. Exposure controls

#### Appropriate engineering controls:

Ensure good ventilation of the work station; Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure; Remove all sources of ignition.

#### Hand protection:

Protective gloves

#### Eye protection:

Safety glasses with side-shields

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### Skin and body protection:

Wear suitable protective clothing

### Respiratory protection:

Generally no special protection is required, but it is recommended to wear a filter in special cases.

### 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	: Gas
Colour	: Colourless
Odour	: Light
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Freezing point	: -159.6 °C
Boiling point	: -11.8 °C
Flash point	: -82.8 °C
Auto-ignition temperature	: 460 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable
Vapour pressure	: 304 kPa at 20 °C
Relative vapour density	: 2.01
Relative density	: 0.56 at 20 °C
Density	: 560 g/cm <sup>3</sup> at 20 °C
Solubility	: Slightly soluble in water, soluble in ethanol, ether, chloroform.
Log Pow	: 2.76
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: Upper: 8.5 vol%; Lower: 1.4 vol%

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Mixing with air can form an explosive mixture, posing a risk of fire and explosion in case of heat and open flame. Contact with oxidant reacts violently. Vapor is heavier than air, spreads along the ground and tends to accumulate in low-lying areas, and will ignite in case of fire.

### 10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Incompatible materials

### 10.5. Incompatible materials

Strong oxidizing agents, strong acids, strong bases. halogen

### 10.6. Hazardous decomposition products

Carbon oxides, Nitrogen oxides, Sulfur oxides, Phosphorus oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified

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

Isobutane (75-28-5)	
LC50 inhalation rat (mg/l)	658 mg/l/4h

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

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

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.  
 Acute aquatic toxicity : Not classified  
 Chronic aquatic toxicity : Not classified

#### 12.2. Persistence and degradability

No additional information available

#### 12.3. Bioaccumulative potential

Isobutane (75-28-5)	
BCF fish 1	1.57 - 1.97
Log Pow	2.76

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Results of PBT and vPvB assessment

No additional information available

#### 12.6. Other adverse effects

No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions  
 Product/Packaging disposal recommendations : Dispose of contents/container in accordance with licensed collector's sorting instructions

### SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
<b>14.1. UN number</b>				
1969	1969	1969	1969	1969
<b>14.2. UN proper shipping name</b>				
ISOBUTANE	ISOBUTANE	Isobutane	ISOBUTANE	ISOBUTANE
<b>Transport document description</b>				
UN 1969 ISOBUTANE, 2.1, (B/D)	UN 1969 ISOBUTANE, 2.1	UN 1969 Isobutane, 2.1	UN 1969 ISOBUTANE, 2.1	UN 1969 ISOBUTANE, 2.1

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### 14.3. Transport hazard class(es)

2.1	2.1	2.1	2.1	2.1

### 14.4. Packing group

Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
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### 14.5. Environmental hazards

Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
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No supplementary information available

### 14.6. Special precautions for user

#### Overland transport

Classification code (ADR) : 2F  
 Special provisions (ADR) : 657, 660, 662  
 Limited quantities (ADR) : 0  
 Excepted quantities (ADR) : E0  
 Packing instructions (ADR) : P200  
 Mixed packing provisions (ADR) : MP9  
 Portable tank and bulk container instructions (ADR) : (M), T50  
 Tank code (ADR) : PxBN(M)  
 Tank special provisions (ADR) : TA4, TT9  
 Vehicle for tank carriage : FL  
 Transport category (ADR) : 2  
 Special provisions for carriage - Loading, unloading and handling (ADR) : CV9, CV10, CV36  
 Special provisions for carriage - Operation (ADR) : S2, S20  
 Hazard identification number (Kemler No.) : 23  
 Orange plates :

23
1969

Tunnel restriction code (ADR) : B/D  
 EAC code : 2YE

#### Transport by sea

Packing instructions (IMDG) : P200  
 Tank instructions (IMDG) : T50  
 EmS-No. (Fire) : F-D  
 EmS-No. (Spillage) : S-U  
 Stowage category (IMDG) : E  
 Stowage and handling (IMDG) : SW2  
 Properties and observations (IMDG) : Flammable hydrocarbon. Heavier than air.

#### Air transport

PCA Excepted quantities (IATA) : E0  
 PCA Limited quantities (IATA) : Forbidden  
 PCA limited quantity max net quantity (IATA) : Forbidden  
 PCA packing instructions (IATA) : Forbidden  
 PCA max net quantity (IATA) : Forbidden

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CAO packing instructions (IATA) : 200  
CAO max net quantity (IATA) : 150kg  
Special provisions (IATA) : A1  
ERG code (IATA) : 10L

### Inland waterway transport

Classification code (ADN) : 2F  
Special provisions (ADN) : 657, 660, 662  
Limited quantities (ADN) : 0  
Excepted quantities (ADN) : E0  
Carriage permitted (ADN) : T  
Equipment required (ADN) : PP, EX, A  
Ventilation (ADN) : VE01  
Number of blue cones/lights (ADN) : 1

### Rail transport

Classification code (RID) : 2F  
Special provisions (RID) : 657, 660, 662  
Limited quantities (RID) : 0  
Excepted quantities (RID) : E0  
Packing instructions (RID) : P200  
Mixed packing provisions (RID) : MP9  
Portable tank and bulk container instructions (RID) : T50(M)  
Tank codes for RID tanks (RID) : PxBN(M)  
Special provisions for RID tanks (RID) : TU38, TE22, TA4, TT9, TM6  
Transport category (RID) : 2  
Special provisions for carriage - Loading, unloading and handling (RID) : CW9, CW10, CW36  
Colis express (express parcels) (RID) : CE3  
Hazard identification number (RID) : 23

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

## SECTION 15: Regulatory information

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

#### 15.1.1. EU-Regulations

No REACH Annex XVII restrictions  
Directive 2012/18/EU (SEVESO III)

#### 15.1.2. National regulations

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on the Canadian DSL (Domestic Substances List)  
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)  
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)  
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory  
Listed on the Japanese ISHL (Industrial Safety and Health Law)  
Listed on the Korean ECL (Existing Chemicals List)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)  
Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Listed on INSQ (Mexican National Inventory of Chemical Substances)  
Listed on Turkish inventory of chemical  
Listed on the TCSI (Taiwan Chemical Substance Inventory)

#### Germany

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

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12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

### Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed  
SZW-lijst van mutagene stoffen : The substance is not listed  
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed  
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed  
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

### Denmark

Class for fire hazard : Class I-1  
Store unit : 1 liter  
Classification remarks : F+ <Flam. Gas 1; Press. Gas>; 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

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

## SECTION 16: Other information

### Abbreviations and acronyms:

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
BCF	Bioconcentration factor
EC50	Median effective concentration
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
NOEC	No-Observed Effect Concentration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
vPvB	Very Persistent and Very Bioaccumulative

### Full text of H- and EUH-statements:

Flam. Gas 1	Flammable gases, Category 1
Press. Gas	Gases under pressure
H220	Extremely flammable gas.

SDS EU (REACH Annex II)

*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*

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TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch  
TÜV SÜD Group



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Engineer: \_\_\_\_\_

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Technical Report checked: \_\_\_\_\_

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