



Report No.: MCHQD2602152-01D

Nomination No.: MND261194QD_UN(En)2/2

Safety Data Sheet (SDS)

Product Name: Isobutane

Warranty of Design: GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Eleventh revised edition

Application Company Name: Hainan Tongnenghua Energy Co., Ltd.

Application Company Address: Building 2, Plot B18, R&F Capital Project, No. 21 Guoxing Avenue, Meilan District, Haikou City, Hainan Province

Contact Information: 19929642444

24 Hour Emergency Call: **19929642444**

Inspection Date: 2026/07/16

In accordance with instructions received from applicant, we compiled and inspected the SDS commissioned by the applicant. The analysis results reported as refer to the next page(s):

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SGS-CSTC Standards Technical Services(Qingdao) Co.,Ltd

Authorised Signatory

2026-07-23

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Safety Data Sheet

Isobutane

Version: V2.0.0.1

Report No.: MCHQD2602152-01D

Nomination No.: MND261194QD_UN(En)2/2

Creation Date: 2026/07/16

Revision Date: -

*Prepared according to UN GHS (the 11th revised edition)



Part 1: Identification

Product identifier

Product Name	Isobutane
Product Model	≥99.5%
CAS No.	75-28-5
EC No.	200-857-2
Molecular Formula	C ₄ H ₁₀

Recommended use of the product and restrictions on use

Relevant identified uses	Refrigerant (R-600a) Aerosol Propellant Polyurethane Foaming Agent Chemical Synthesis Raw Materials.
Uses advised against	For industrial refrigeration and chemical synthesis purposes only; prohibited for use in food, pharmaceuticals, and personal consumer products.

Details of the supplier

Name of the company	Hainan Tongnenghua Energy Co., Ltd.
Address of the company	Building 2, Plot B18, R&F Capital Project, No. 21 Guoxing Avenue, Meilan District, Haikou City, Hainan Province
Post code	—
Telephone number	19929642444
Fax number	—
E-mail address	602997936@qq.com

Emergency phone number

Emergency phone number	19929642444
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Part 2: Hazard(s) identification

Hazard classification according to GHS

Flammable Gases	Category 1A, Flammable gas
Gases Under Pressure	Liquefied gas

GHS Label elements

Hazard pictograms	
Signal word	Danger

Hazard statements

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

Precautionary statements

◆ Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
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◆ Response

P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	In case of leakage, eliminate all ignition sources.

◆ Storage

P403	Store in a well-ventilated place.
P410+P403	Protect from sunlight. Store in a well-ventilated place.

◆ Disposal

Disposal	Not applicable
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Hazard description

◆ Physical and chemical hazards

	Extremely flammable gas, risk of explosion. High pressure, may explode if heated.
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◆ Health hazards

Inhaled	Shortness of breath. Suffocation.
Ingestion	Due to physical form of this product, considered an unlikely route of entry in commercial/industrial environments.
Skin Contact	ON CONTACT WITH LIQUID: FROSTBITE.
Eye	This product may cause temporary discomfort following direct contact with the eye.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.
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Part 3: Composition/information on ingredients**Substance/mixture**

	Substance
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Component	CAS No.	EC No.	Volume %content(or range)
Isobutane	75-28-5	200-857-2	≥ 99.5

Part 4: First-aid measures**Description of first aid measures**

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Eye contact	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.

Skin contact	ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention.
Ingestion	Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	Fresh air, rest. Refer for medical attention.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.
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Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

Part 5: Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Small fire: dry chemical or CO ₂ ; Large fire: water spray or fog; Fire involving tanks: fight fire from maximum distance or use unmanned master stream devices or monitor nozzles. cool containers with flooding quantities of water until well after fire is out.
Unsuitable extinguishing media	Do not extinguish a leaking gas fire unless leak can be stopped. Fire involving tanks: do not direct water at source of leak or safety devices, icing may occur.

Specific hazards arising from the substance or mixture

1	Development of hazardous combustion gases or vapor possible in the event of fire.
2	May expansion or decompose explosively when heated or involved in fire.
3	Flammable: will be easily ignited by heat, sparks or flames.
4	Will form explosive mixtures with air.
5	Fire exposed containers may vent contents through pressure relief valves thereby increasing fire intensity and/or vapour concentration.
6	Vapours may travel to source of ignition and flash back.

Special protective equipment and precautions for fire-fighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent firefighting wastewater from contaminating surface water or the ground water system.

Part 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

1	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
2	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
3	Use personal protective equipment, do not breathe gas.
4	Avoid breathing vapours and contacting with skin and eye.
5	Beware of vapours accumulating to form explosive concentrations.

6	Vapours can accumulate in low areas.
7	Emergency personnel wear positive pressure self-contained breathing apparatus. Wear protective and anti-static clothing. Wear chemical impermeable gloves.

Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

1	Do not touch or cross spills.
2	All equipment used in the work should be grounded.
3	Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.
4	Spray water inhibits vapor or changes the direction of vapor cloud flow.
5	Do not allow spills to come into contact with combustible materials such as wood, paper, oil, etc.
6	Isolate the leak area until the gas is exhausted.

Part 7: Handling and storage

Precautions for safe handling

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.
4	Keep away from heat/sparks/open flames/ hot surfaces.
5	Use only non-sparking tools.
6	Avoid inhalation of vapors.
7	To prevent fire caused by electrostatic discharge steam, equipment on all metal parts should be grounded.
8	Use explosion proof equipment.

Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

Part 8: Exposure controls/personal protection

Control parameters

◆ Occupational exposure limit values (International)

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m ³	ppm	mg/m ³
Isobutane	Canada - Ontario	1000	-	-	-
	Germany (AGS)	1000	2400	4000	9600
	Germany (DFG)	1000	2400	4000	9600
	South Korea	800	-	-	-
	Spain	1000	-	-	-

	Switzerland	800	1900	-	-
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◆ Biological limit values

Biological limit values	No relevant regulations
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◆ Monitoring methods

1	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
2	GBZ/T 300 and GBZ/T 160 series standard Determination of toxic substances in workplace air.

| Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Set up emergency exit and necessary risk-elimination area.
4	Handle in accordance with good industrial hygiene and safety practice.
5	Use explosion-proof electrical/ventilating/lighting/equipment.

| Personal protection equipment

General requirement	
Eye protection	Must wear appropriate safety goggles.
Hand protection	Must wear anti static chemical protective gloves.
Respiratory protection	Appropriate respiratory protective equipment must be worn. When the oxygen concentration is unknown, a self-contained atmosphere-supplying respiratory protective apparatus must be worn.
Skin and body protection	Must wear anti static chemical protective clothing and anti static shoes.

Part 9: Physical and chemical properties

| Physical and chemical properties

Physical state	gas
Colour	Colorless
Odour	Odorless
Odour threshold	No information available
pH	Not applicable
Melting point/freezing point(°C)	-159.6
Boiling point/freezing point(°C)	-11.7
Flash point(Closed cup,°C)	Not applicable
Evaporation rate	Not applicable
Flammability	Extremely flammable
Lower and upper explosion limit/flammability limit [% (v/v)]	Upper limit: 8.4; Lower limit: 1.8
Vapour pressure(kPa)	304(20°C)
Relative vapour density(Air = 1)	2
Relative density(Water=1)	0.56(liquid)
Solubility(mg/L)	Very poor(20°C)

Partition coefficient n-octanol/water (log value)	2.3
Auto-ignition temperature(°C)	460
Decomposition temperature(°C)	No information available
Kinematic viscosity(mm²/s)	Not applicable
Particle characteristics	Not applicable

Part 10: Stability and reactivity

Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous reactions	In contact with an open flame may cause a fire or explosion.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Oxidantss and halogen.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Part 11: Toxicological information

Acute toxicity

Acute toxicity	No information available
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Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Isobutane	Not Listed	Not Listed

Others

Isobutane(Component)	
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Based on available data, the classification criteria are not met
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT-single exposure	Based on available data, the classification criteria are not met
STOT-repeated exposure	Based on available data, the classification criteria are not met
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met

Part 12: Ecological information

Acute aquatic toxicity

Acute aquatic toxicity	No information available
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Chronic aquatic toxicity

Chronic aquatic toxicity	No information available
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Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Isobutane	High	High

Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Isobutane	Low	BCF=1.97

Mobility in soil

Component	log Koc	Remark
Isobutane	1.545	

Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006 with amendment 2020/878]
Isobutane	Not applicable

Part 13: Disposal considerations

Disposal considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

Part 14: Transport information

Label

Transporting Label	
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IMDG-CODE

UN number	1969
UN proper shipping name	ISOBUTANE
Transport hazard class	2.1
Transport subsidiary hazard class	None
Packing group	The packagings must conform to package instructions of UN number
Marine pollutant (Yes or no)	No
EmS No.	F-D, S-U

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IATA-DGR

UN number	1969
UN proper shipping name	ISOBUTANE
Transport hazard class	2.1
Transport subsidiary hazard class	None
Packing group	The packagings must conform to package instructions of UN number

UN-ADR

UN number	1969
UN proper shipping name	ISOBUTANE
Transport hazard class	2.1
Transport subsidiary hazard class	None
Packing group	The packagings must conform to package instructions of UN number

Special precautions for user

	Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements. Shipment of the goods vehicle exhaust pipe must be equipped with fire retardant devices, prohibit using mechanical equipment and tools of which easy to produce sparks. Strictly prohibited shipping or transportation with oxidants, halogens etc. Height shall not exceed the vehicle fence board, and with a triangular wooden pad cards firmly to prevent rolling. Cylinders generally flat, and the bottles should be in the same direction, should not cross. A safety helmet must be fitted for cylinder transport.
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Transport in bulk according to IMO instruments

- ◆ Transport in bulk according to Annex II of MARPOL and the IBC code

	No information available
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- ◆ Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

	No information available
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- ◆ Transport in bulk in accordance with the IGC Code

	No information available
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Part 15: Regulatory information

International chemical inventory

Component	A	B	C	D	E	F	G	H	I	J	K	L	M
Isobutane	√	√	√	√	√	√	√	√	√	√	√	√	√

- [A] China Inventory of Existing Chemical Substances(IECSC)
 [B] European Inventory of Existing Commercial Chemical Substances(EC inventory)
 [C] United States Toxic Substances Control Act Inventory(TSCA)
 [D] Canadian Domestic Substances List(DSL)
 [E] New Zealand Inventory of Chemicals(NZIoC)

- 【F】 Philippines Inventory of Chemicals and Chemical Substances(PICCS)
- 【G】 Korea Existing Chemicals Inventory(KECL)
- 【H】 Australian Inventory of Industrial Chemicals(AIIC)
- 【I】 Japan Inventory of Existing & New Chemical Substances(ENCS)
- 【J】 Thailand Existing Chemicals Inventory(TECI)
- 【K】 Mexico National Inventory of Chemical Substances(INSQ)
- 【L】 Russia Inventory of Existing Substances(DRAFT)
- 【M】 Inventory of Existing Chemical Substances in Taiwan, China(TCSI)

List of Chemical Substances under International Conventions

Component	A	B	C
Isobutane	x	x	x

- 【A】 The Montreal Protocol on Substances that Deplete the Ozone Layer
- 【B】 Stockholm Convention on Persistent Organic Pollutants (POPs)
- 【C】 Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade

Note:

- “√” Indicates that the substance included in the regulations.
- “x” No data or not included in the regulations.

Part 16: Other information

Information on revision

Creation Date	2026/07/16
Revision Date	-
Reason for revision	-

Reference

- [1] IPCS: The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.
- [2] IARC, website: <http://www.iarc.fr/>.
- [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.echemportal.org/echemportal/>.
- [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.
- [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.
- [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.
- [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.
- [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organisation for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transport Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC ₅₀	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD ₅₀	Lethal Dose 50%	NTP	National Toxicology Program
EC ₅₀	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC _x	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P _{ow}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor	G1	Carcinogenic to humans
G2A	Probably carcinogenic to humans	G2B	Possibly carcinogenic to humans

G3	Not yet classified as carcinogenic to humans	G4	Probably not carcinogenic to humans
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Disclaimer

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