

Chemical Safety Data Sheet

SECTION 1 IDENTIFICATION

GHS Product identifier: Isobutane(R600a).

Other means of identification: /

Recommended use of the chemical and restrictions on use: /

Supplier's details: /

Emergency phone number: /

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Flammable gas Category 1

Gases under pressure (Liquefied gas).

GHS Label elements, including precautionary statements



Signal word: Danger

Hazard statement(s): Extremely flammable gas. Contains gas under pressure; may explode if heated.

Precautionary statement(s):

Prevention:

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

Response:

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

Storage:

Store in a well-ventilated place. Protect from sunlight.

Disposal:

/

Other hazards which do not result in classification: /

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration%
iso-Butane	75-28-5	99.97%

SECTION 4 FIRST AID MEASURES

Description of necessary first aid measures

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Wash off with soap and plenty of water.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed: Not considered a normal route of entry.

Most important symptoms and effects, both acute and delayed: /

Indication of immediate medical attention and special treatment needed: /

SECTION 5 FIREFIGHTING MEASURES

Suitable extinguishing media: SMALL FIRE: Use extinguishing agent suitable for type of surrounding fire. LARGE FIRE: Cool cylinder. DO NOT direct water at source of leak or venting safety devices as icing may occur.

Special hazards arising from the chemical: HIGHLY FLAMMABLE: will be easily ignited by heat, sparks or flames. Fire exposed cylinders may vent contents through pressure relief devices thereby increasing vapour concentration. Fire may produce irritating, poisonous or corrosive gases. Runoff may create fire or explosion hazard. May decompose explosively when heated or involved in fire. Containers may explode when heated - Ruptured cylinders may rocket. Contact with gas may cause burns, severe injury and/ or frostbite.

Special protective actions for fire-fighters: Wear full body protective clothing with breathing apparatus. Fight fire from a safe distance, with adequate cover. If safe, switch off electrical equipment until vapour fire hazard removed. Use water delivered as a fine spray to control fire and cool adjacent area. DO NOT approach cylinders suspected to be hot. Cool fire exposed cylinders with water spray from a protected location. If safe to do so, remove cylinders from path of fire.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Avoid breathing vapour and any contact with liquid or gas. Protective equipment including respirator should be used. DO NOT enter confined spaces where gas may have accumulated.

Environmental precautions: Increase ventilation. Clear area of personnel.

Methods and materials for containment and cleaning up: Minor Spills: Stop leak only if safe to do so. Remove leaking cylinders to safe place. Release pressure under safe controlled conditions by opening valve. Major Spills: Water spray or fog may be used to disperse vapour. DO NOT enter confined space where gas may have collected. Keep area clear until gas has dispersed. Remove leaking cylinders to a safe place. Fit vent pipes. Release pressure under safe, controlled conditions

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling: Consider use in closed pressurised systems, fitted with temperature, pressure and safety relief valves which are vented for safe dispersal. Check regularly for spills or leaks. Keep valves tightly closed but do not apply extra leverage to hand wheels or cylinder keys. Test for leakage with brush and detergent - NEVER use a naked flame. Leaking gland nuts may be tightened if necessary.

If a cylinder valve will not close completely, remove the cylinder to a well-ventilated location (e.g. outside) and, when empty, tag as FAULTY and return to supplier.

Conditions for safe storage, including any incompatibilities: Cylinders should be stored in a

purpose-built compound with good ventilation, preferably in the open. Such compounds should be sited and built in accordance with statutory requirements. The storage compound should be kept clear and access restricted to authorised personnel only. Cylinders stored in the open should be protected against rust and extremes of weather. Cylinders in storage should be properly secured to prevent toppling or rolling. Cylinder valves should be closed when not in use. Where cylinders are fitted with valve protection this should be in place and properly secured. Gas cylinders should be segregated according to the requirements of the Dangerous Goods Act. Preferably store full and empty cylinders separately. Check storage areas for hazardous concentrations of gases prior to entry. Full cylinders should be arranged so that the oldest stock is used first. Cylinders in storage should be checked periodically for general condition and leakage. Protect cylinders against physical damage. Move and store cylinders correctly as instructed for their manual handling.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
iso-butane	Methylpropane, 2-; (Isobutane)	5500 ppm	17000 ppm	53000 ppm

Appropriate engineering controls: Areas where cylinders are stored require good ventilation and, if enclosed, need discrete/controlled exhaust ventilation.

Personal protective equipment

Eye/face protection: Safety glasses with side shields. Chemical goggles.

Skin protection: Neoprene gloves, Polyethylene gloves. When handling sealed and suitably insulated cylinders wear cloth or leather gloves.

Respiratory protection: Positive pressure, full face, air-supplied breathing apparatus should be used for work in enclosed spaces if a leak is suspected or the primary containment is to be opened (e.g. for a cylinder change).

Thermal hazards: /

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Liquefied gas in a Cylinder.
Odour	/
Odour Threshold	/
pH	/
Melting point/freezing point	-160°C
Initial boiling point and boiling range	-12°C
Flash point	/
Evaporation rate	/
Flammability (solid, gas)	Extremely flammable.
Upper/lower flammability or explosive limits	1.8%~8.4%
Vapour pressure	304kPa (20°C)
Vapour density (Air = 1)	/
Relative density (Water = 1)	0.6 (liquid)
Water solubility	Immiscible (20°C)
Partition coefficient: noctanol/water	/

Autoignition temperature	/
Decomposition temperature	/
Viscosity	/

SECTION 10 STABILITY AND REACTIVITY

Reactivity: /

Chemical stability: Stable at normal temperature.

Possibility of hazardous reactions: Hazardous polymerisation will not occur.

Conditions to avoid: Heat, flames.

Incompatible materials: Oxidants, flammable or combustible substances.

Hazardous decomposition products: Carbon monoxide (CO), carbon dioxide (CO₂), other pyrolysis products typical of burning organic material.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on the likely routes of exposure: Inhaled, Ingestion, skin, eyes.

Symptoms related to the physical, chemical and toxicological characteristics: /

Acute health effects

Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo. Ingestion: Not normally a hazard due to physical form of product. Vapourising liquid causes rapid cooling and contact may cause cold burns, frostbite. Eye: Direct contact with the eye may not cause irritation because of the extreme volatility of the gas.

Chronic health effects: /

Numerical measures of toxicity (such as acute toxicity estimates):

Iso-butane:

Inhalation (rat) LC50: 658 mg/l/4h

SECTION 12 ECOLOGICAL INFORMATION

Toxicity:

iso-butane:

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE
LC50	96	Fish	6.706mg/L
EC50	96	Algae or other aquatic plants	7.71mg/L

Persistence and degradability: HIGH.

Bioaccumulative potential: LOW (BCF = 1.97).

Mobility in soil: LOW (KOC = 35.04).

Other adverse effects: /

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal methods: Evaporate residue at an approved site. Return empty containers to supplier. If containers are marked non-returnable establish means of disposal with manufacturer prior to purchase. Ensure damaged or non-returnable cylinders are gas-free before disposal.

SECTION 14 TRANSPORT INFORMATION

UN number: 1969.
UN proper shipping name: ISOBUTANE.
Transport hazard class(es): 2.1.
Packaging group: /
Environmental hazards: /
Special precautions for user: /

SECTION 15 REGULATORY INFORMATION

Regulations:

This safety data sheet is in compliance with the following national standards: GB/T 16483-2008, GB13690-2009, GB18218-2018, GB15258-2009, GB6944-2012, GB190-2009, GB/T191-2008, GB12268-2008, GB/T 15098-2008, GBZ 2.1-2019 as well as the following national regulations: Dangerous Goods Transport Administrative Regulation, Dangerous Chemicals Safety Administrative Regulation.

SECTION 16 OTHER INFORMATION

References	“Model Regulations on the Transport of Dangerous Goods” “The Globally Harmonized System of Classification and Labelling of Chemicals”
Form Date	18-September-2020

Note 1: When products contain two or more hazardous substances, Safety Data Sheets should be prepared based on the risk of the mixture.

Note 2: Manufacturer / supplier should ensure the correctness of the information contained in the safety data sheets, and updated in a timely manner.

Note 3: As a result of product features without the existence of certain information (such as boiling point does not exist for the solid) in the table with "/" logo.