

# Safety Data Sheet (SDS)

The content and format of this SDS is accordant with 29 CFR 1910.1200 (OSHA standard)

## 1. Identification

### Product details:

**Product name:** Refrigerator

**Recommended use of the chemical and restrictions on use:** Refrigerating machines. Restrictions on use: Do NOT use it in an application which may contaminate food or do harm to human health.

**Manufacturer/Supplier:** Ningbo Hicon International Industry Co., Ltd.

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## 2. Hazards identification

### GHS classification:

Physical hazards:	Flammable gases - Category 1 Gases under pressure - Liquefied gas
Health hazards:	Not classified
Environmental hazards:	Not classified

**Signal Word: Danger**

### Pictograms:



### Hazard Statements:

H220: Extremely flammable gas.

H280: Contains gas under pressure; may explode if heated.

### Precautionary Statements:

P210: Keep away from heat/sparks/open flames/hot surfaces. -No smoking.

### Response Precautionary Statements:

P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381: Eliminate all ignition sources if safe to do so.

### Storage precautionary statements:

P403: Store in well-ventilated place.

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

### Disposal precautionary statements:

No special requirements.

### 3. Composition/information on ingredients

**Product description:** substance (√); preparation/mixture ( )

Ingredient (s)	CAS No.	EC No.	% by weight
Isobutane	75-28-5	200-857-2	100

### 4. First aid measures

**Persons using this product should consult a physician or other medical professional if an accident involving this product results in injury. Specific first-aid measures are as follows:**

**Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

**Skin Contact:** Wash with plenty water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.

**Eyes Contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

**Ingestion:** Unlikely route of exposure. As this product is a gas, refer to the section "Inhalation". Do not induce vomiting without medical advice. Obtain immediate medical attention.

**Acute effect and delayed effect:** Acute effect: Not found. Delayed effect: Not found.

**Personal protective equipment:** Wear protective gloves/protective clothing/eye protection/face protection when necessary.

**Indication of immediate medical attention and treatment needed, if necessary:** Treat according to symptoms and exposure dose.

### 5. Fire-fighting measures

**Extinguishing Media:** Dry powder, water spray, alcohol-resistant foam and CO<sub>2</sub>.

**Unsuitable Extinguishing Media:** Discharging cylinder shape water from fire hose may lead to spread fire to the surroundings.

**Special hazards arising from the chemical:** Extremely flammable gas. Contains gas under pressure; may explode if heated. Exercise caution when fighting any chemical fire. Vapors are heavier than air and may travel considerable distance to an ignition source and flash back to source of vapors. In case of fire, decomposition products may include the following materials: carbon dioxide and monoxide.

**Fire Fighting Method:**

For initial fire, use dry powder, carbon dioxide, etc.

For large fire, it is effective to use fire foam, etc. to shut off air supply.

Deny unnecessary entry to the place around the fire.

Remove containers from fire area if it can be done without risk.

Cool surrounding facilities, etc. with water spray.

Extinguish fire from upwind, and the fire extinguishing method should be appropriate to the situation in the surroundings.

**Special actions for fire-fighters:** Firefighters must wear self-contained breathing apparatus and full protective equipment.

Check whether the protective equipment is in good condition before use.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures:** Use proper personal protective equipment as indicated in Section 8.

**Environmental precautions:** Keep cleaning run-offs out of municipal sewers and open bodies of water. Comply with local and national laws and regulations.

**Methods and material for containment and cleaning up:**

Stop the source of the release, if safe to do so. Consider the use of water spray to disperse vapors. Isolate the area until gas has dispersed. Ventilate and gas test area before entering. Contact competent authorities after a spill.

## 7. Handling and storage

**Precautions for safe handling:**

The substance must be handled in accordance with good industrial hygiene and safety procedures.

Refer to supplier's / manufacturer's handling instructions.

Handle and open container with care. Caution when opening, pressurized container.

Protect from sunlight and do not expose to temperatures exceeding 50° C (122 °F).

Do not spray on a naked flame or any incandescent material.

Do not use in area without adequate ventilation.

Protect containers from physical damage; do not drag, roll, slide or drop.

Do not pierce or burn, even after use.

Leave valve protection caps in place until the container is ready for use.

Close container valve after each use and when empty, even if still connected to equipment.

Do not remove or deface labels provided by the supplier for the identification of the container contents.

Keep away from heat/sparks/open flames/hot surfaces. -No smoking.

**Conditions for safe storage, including any incompatibilities:** Keep containers tightly closed in a dry, cool and well-ventilated place, away from any ignition or heat sources. Store in original container. Container valves or caps should be in place.

**Incompatible substances or mixtures:** Avoid storage with oxidizing products, acids and, in general, with chemicals. Avoid storage with tools or equipment that may cause sparks.

**Packing material:** No relevant information.

## 8. Exposure controls/personal protection

**Occupational Exposure Limits:**

Ingredients	OSHA PEL-TWA	ACGIH TLV-TWA
Isobutane (CAS: 75-28-5)	--	1000 ppm

**Engineering Controls:**

Use this product only in closed systems fully or with local exhaust ventilation.

Install washer eyes and safety showers near to the handling and storage area.

Shows the location of these facilities, with a clear and prominent warning board.

**Personal Protective Equipment (For workers):**

**Protection of Hands:** Wear protective gloves.



**Protection of Eyes:** Safety glasses with side-shields or face shield recommended to wear.



**Respiratory Protection:** In gas leak case, to wear compressed air breathing apparatus is recommended.



**Protection of Body:** Wear anti-static and flame-retardant safety-clothing.



**General protective and hygienic measures:**

Wash hands before breaks and at the end of work.

## 9. Physical and chemical properties

General Information	
Form	Liquefied gas
Color	Colorless
Odor	Odorless
Odor threshold	No data available
pH	No data available
Melting point/freezing point	-159.0°C
Initial boiling point and boiling range	-12.0°C
Flash point	-82.8°C
Evaporation rate	No data available
Flammability (solid, gas, etc.)	Extremely flammable gas. Contains gas under pressure; may explode if heated.
Upper/lower flammability or explosive limits	No data available
Vapor pressure	No data available
Vapor density	No data available
Relative density	No data available
Solubility (ies)	Slightly soluble in water

<b>Partition coefficient: n-octanol/Water</b>	No data available
<b>Auto-ignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Viscosity</b>	No data available

## 10. Stability and reactivity

**Reactivity and Chemical stability:** Stable under normal handling and storage conditions.

**Possibility of hazardous reactions:** May react violently with oxidants. Can form explosive mixture with air.

**Conditions to Avoid:** Contains gas under pressure, may explode if heated. Protect from sunlight and do not expose to temperatures exceeding 50 °C. Keep away from heat, sparks, open flame or other sources of ignition. Do not smoke. Do not pierce or burn, even after use. Do not spray on a naked flame or any incandescent material.

**Incompatible materials:** Avoid storage with oxidizing products, acids and, in general, with chemicals. Avoid storage with tools or equipment that may cause sparks.

**Hazardous decomposition products:** In case of fire, decomposition products may include the following materials: carbon dioxide and monoxide.

## 11. Toxicological information

### Product Toxicity Data:

Ingredient (s)	CAS No.	LD <sub>50</sub> /LC <sub>50</sub> (Median lethal dose)
Isobutane	75-28-5	Acute toxicity (inhalation) LC <sub>50</sub> : 520,400 ppm/120min (mouse) Data source: ECHA
Classification of the whole product:		Not classified

**Skin corrosion/irritation** No classification for this product.

**Serious eye damage/eye irritation** No classification for this product.

**Respiratory sensitizer** No classification for this product.

**Skin sensitizer** No classification for this product.

**Germ cell mutagenicity** No classification for this product.

**Carcinogenicity** No classification for this product.

**Reproductive Toxicity** No classification for this product.

**Specific target organ toxicity, single exposure:** No classification for this product.

**Specific target organ toxicity, repeated exposure:** No classification for this product.

**Aspiration hazard** No classification for this product.

## 12. Ecological information

### Ecotoxicity:

Isobutane (CAS: 75-28-5):

96h-LC<sub>50</sub>: 49.9 mg/L, fish (ECHA)

48h-LC<sub>50</sub>: 27.14 mg/L, aquatic invertebrates (Daphnia sp.) (ECHA)

Classification of the whole product: Not classified

**Persistence and degradability:** No data available.

**Bioaccumulative potential:** No data available.  
**Mobility in Soil:** No data available  
**Other adverse effects:** No relevant information.

### 13. Disposal considerations

**Waste treatment methods:**

It is recommended to use physical and chemical treatment methods for waste disposal.  
Any disposal practice must be in compliance with country, local, state, and federal laws and regulations.  
Generally this product will not contaminate the packaging, so the packaging can be disposed of as non-hazardous waste.

### 14. Transport Information

**DOT/Air-Transportation- IATA/ICAO/Sea-Transportation-IMO/IMDG:**

**UN proper shipping name:** Refrigerating machines

**Transport hazard class(es):** 2.1

**UN number:** 3358

**Packing Group:** Not applicable

**Packing Group Symbol:**



**Marine Pollutant (Yes/No):** No

**EMS NO.:** F-D S-U

**Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** Not applicable.

**Special precautions:**

Check whether the package is completed or sealed before transporting; make sure no damage of packages and prevent goods from falling down during transporting; the transport vehicle should be equipped with facilities for fire-fighting and accidental release handling; do NOT transport this product together with incompatible substances; stay away from fire and areas of high temperature during stopovers.

### 15. Regulatory information

**United States:**

**Section 355 (extremely hazardous substances):** Not listed.

**SARA 313:**

Chemical Name	CAS No.	Weight-%	SARA 313 – Threshold Values %
Not applicable	Not applicable	Not applicable	Not applicable

**Clean Water Act:**

Chemical Name	CWA - Reportable Quantities	CWA - Hazardous Substances	CWA - Priority Pollutants	CWA - Toxic Pollutants
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

**Toxic Substances Control Act (TSCA):**

Ingredient (s)	CAS No.	TSCA Inventory
Isobutane	75-28-5	Listed

**Carcinogenicity categories:** Not applicable.

**Other relevant laws and regulations:**

**Canada Domestic Substances List (DSL):**

Ingredient (s)	CAS No.	DSL
Isobutane	75-28-5	Listed

**Canada Non-domestic Substance List (NDSL):** Not listed.

**Candidate List of Substances of very high concern (SVHC) according to ECHA:** Not listed.

**REACH Regulation Annex XVII Regulation List:** Not listed.

**REACH Regulation Annex XIV Authorization List:** Not listed.

**Germany – WGK:** Not classified.

**(EC) 1272/2008 Annex VI Table 3.1:**

Ingredient(s)	EC No. 1272/2008 Classification	
	CLASS. CODE	HAZARD CODE
Isobutane (CAS: 75-28-5)	Flam. Gas 1 Press. Gas	H220

**Chemical Safety Assessment:** A Chemical Safety Assessment has not been carried out.

**16. Other information**

**DISCLAIMER:**

All the information of this SDS is true and effective, and only for reference. Our company will not control the way how people use it, neither will we be responsible for any consequence. The users shall decide how to properly use the product or adopt certain production way for some special purpose. The above mentioned precautionary measures are helpful to avoid damage to the property or life safety during the operation or use of this product.

**References:**

- GHS Annex II
- GHS SDS Instruction
- ANSI Z400.1/Z129.1-2010
- OSHA Hazard Communication Standard (HCS) 2012

**Full description of some acronyms:**

**CAS-Chemical Abstracts Service**

**EINECS-European Inventory of Existing Commercial Chemical Substances**

**IMO-International Maritime Organization**  
**IMDG-International Maritime Dangerous Goods**  
**IATA-International Air Transport Association**  
**ICAO-International Civil Aviation Organization**  
**TSCA-Toxic Substances Control Act**  
**OSHA-Occupational Safety and Health Administration**  
**ACGIH- American Conference of Governmental Industrial Hygienists**  
**ECHA- European Chemicals Agency**  
**NITE-CHRIP- Japan National Institute of Technology and Evaluation-Chemical Risk Information Platform**

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