

MSDS Report

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Applicant : CIXI CITY FUHAI SHUNJI APPLIANCE CO., LTD.
Address : DONGHAI VILLAGE, FUHAI TOWN, CIXI CITY, ZHEJIANG, PRC

Below information submitted by the applicant:

Name : Iso-butane, R600a
Model : /
Model may cover : /
Reference info. : /
Supplier info. : /
Buyer info. : /
Destination : /
Original : China

Sample Received : 05.13, 2020
Test Period : 05.13, 2020 - 05.14, 2020
Test Requirement : Please refer to next page(s).
Test Method : Please refer to next page(s).
Test Result : Please refer to next page(s).
Test Conclusion : Please refer to next page(s).

Result Summary	Test Items	Verdict
	1. Material Safety Data Sheet for the submitted samples in according to GHS Rev.3 and European Regulation No.1272/008, No.1907/2006 and its amendments	Refer to next

Jerry Zhao, Technical Director
Signed for and on behalf of
TUV THURINGEN SHANGHAI CO., LTD.
Shanghai

DONGHAI VILLAGE, FUHAI TOWN, CIXI CITY, ZHEJIANG, PRC

Prepared

2020.05.13

According to GHS Rev.3 and European Regulation No.1272/2008, No.1907/2006 and its amendments

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Section 1 Identification of the substance/ mixture and of the company/ undertaking

1.1 Product identifier

Product form Substances

Product Name Iso-butane, R600a

Model/Type /

Model may cover /

CAS No. Refer to section 3

Type of product Substances

Chemical structure Refer to section 3

Synonyms /

Product group /

1.2.1 Relevant identified uses

Main use category Industrial use; Use as directed.

Use of the substance / article For more detail information, see technical data sheet

1.2.2 Uses advised against

No additional information available

1.3 Details of the supplier of safety data sheet

Manufacturer/ supplier CIXI CITY FUHAI SHUNJI APPLIANCE CO., LTD.
DONGHAI VILLAGE, FUHAI TOWN, CIXI CITY, ZHEJIANG, PRC

TEL +86- 13081999801

E-mail 34560399@qq.com

1.4 Emergency telephone number +86- 13081999801

Section 2 Hazards identification

2.1 Classification of the substances or mixture

As defined in European Regulation No.1272/2008 CLP:

Flammable gases - Category 1 - Danger (H220)

Gases under pressure - Liquefied gas -Warning (H280)

2.2 Label elements

Pictogram



Signal word Danger

Hazard statement(s)
H220 : Extremely flammable gas
H280 : Contains gas under pressure; may explode if heated.

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2.3 Precautionary Statements

-Prevention P210 : Keep away from heat/sparks/open flames/hot surfaces – No smoking.
 -Response P377 : Leaking gas fire : Do not extinguish unless leak can be stopped safely.
 P381 : Eliminate all ignition sources if safe to do so.
 -Storage P403 : Store in a well ventilated place.

2.4 Hazards not otherwise classified

No information available

2.5 Other information

No information available

2.6 Other hazards

Results of PBT and vPvT assessment

PBT No PBT substances

vPvB No vPvB substances

Section 3 Composition/ information on ingredients

3.1 Substance

Substances

3.2 Composition

Name	CAS No.	EC No.	Concentration, %
Isobutane	75-28-5	200-857-2	100

Section 4 First-aid measures

4.1 Description of first aid measures

General advice The first aid advice given for skin contact, eye contact and ingestion is applicable following exposures to the liquid or spray.

If inhaled Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary. Apply artificial respiration if breathing has ceased or shows signs of failing. In the event of cardiac arrest apply external cardiac massage. Obtain immediate medical attention.

In case of skin contact Thaw affected areas with water. Remove contaminated clothing. Caution: clothing may adhere to the skin in the case of freeze burns. After contact with skin, wash immediately with plenty of warm water. If irritation or blistering occur, obtain medical attention.

In case of eye contact Immediately irrigate with eyewash solution or clean water, holding the eyelids apart for at least 15 minutes. Obtain immediate medical attention.

If swallowing Unlikely route of exposure. Do not induce vomiting. Provided the patient is conscious, wash out mouth with water and give 200-300ml (half a pint) of water to drink. Obtain immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

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Permanent eye damage including blindness could result. Causes severe skin burns. Prolonged or repeated skin contact may aggravate existing skin conditions. Inhalation of mists may aggravate existing chronic respiratory conditions such as asthma, emphysema or bronchitis.

4.3 Indication of any immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General Information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5 Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media All known extinguishants can be used.

Unsuitable extinguishing media No related information available

5.2 Special hazards arising from the substance or mixture

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Hazardous decomposition products in case of fire Incomplete combustion may form carbon monoxide.

5.3 Advice for firefighters

If possible, stop flow of product.
Move away from the container and cool with water from a protected position.
Do not extinguish a leaking gas flame unless absolutely necessary.
Spontaneous/explosive re-ignition may occur. Extinguish any other fire.

5.4 Special protective equipment for firefighters

In confined space use self-contained breathing apparatus.

Section 6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Evacuate area.
Ensure adequate air ventilation.
Eliminate ignition sources.

6.2 Environmental precautions

Try to stop release.
Prevent from entering sewers, basements and work-pits or any place where its accumulation can be dangerous.

6.3 Methods and material for containment and cleaning up

Leaking cans should be placed in a plastic bag or open pail until the pressure has dissipated. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly. Report spills to authorities as required.

6.4 Reference to other sections

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

Section 7 Handling and storage

7.1 Precautions for safe handling

Take precautionary measures against static discharge.
Suck back of water into the container must be prevented.
Purge air from systems before introducing gas.
Do not allow back-feed into the container.
Use properly specified equipment which is suitable for this product, its supply pressure and temperature.
Contact your gas supplier if in doubt.
Keep away from ignition sources (including static discharges).
Refer to suppliers container handling instructions.

7.2 Conditions for safe storage, including any incompatibilities

Segregate from oxidant gases and other oxidants in store.
Keep container below 50°C in a well ventilated place.

7.3 Specific end uses

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

Section 8 Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits 1000ppm, OSHA PEL

8.2 EXPOSURE CONTROLS

Mechanical:
Provide as needed to keep concentration in air below TLV and LEL
Appropriate engineering controls
Local Exhaust:
Continuous ventilation recommended
Special:
Explosion proof fans and motors

Personal protective equipment

SKIN PROTECTION:
Impervious, insulated gloves recommended. Impervious clothing for prolonged or repeated contact
EYE PROTECTION:
Face shield or goggles recommended
RESPIRATORY PROTECTION:
NIOSH approved self-contained breathing apparatus in confined areas

Control of environmental exposure Do not let product enter drains.

Section 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state

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Appearance	Clear, colorless liquefied gas
Color	Clear, colorless
Odor	Sweet petroleum odor
Odor threshold	No data available
pH	No data available
Relative evaporation rate (butylacetate=1)	No data available
Melting point	-159.0°C
Freezing point	No data available
Boiling point	-11.8°C
Flash point	-82.8°C
Auto-ignition temperature	No data available
Decomposition temperature	Not data available
Flammability (solid, gas)	Flammability range: 1.8%~8.5% in air
Vapor pressure	No data available
Relative vapor density at 20°C	2.01 (air=1)
Relative density, gas (air=1)	2.01
Relative density, liquid (water=1)	0.56
Vapor pressure	3bar
Auto ignition temperature	460°C
Saturation vapor pressure, kPa	160.09 (0°C)
Critical temperature	135°C
Solubility	54mg/L in water
Log Pow	No data available
Viscosity, kinematic	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Explosive limits	No data available
9.2 Other information	
Minimum ignition energy	No data available
VOC content	>1%

Section 10 Stability and reactivity



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10.1 REACTIVITY

No reactivity hazard other than the effects described in sub-sections below.

10.2 CHEMICAL STABILITY

Stable under normal conditions.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS

May occur.

10.4 CONDITIONS TO AVOID

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

10.5 INCOMPATIBLE MATERIALS

Oxidizing agents.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS

Thermal decomposition may produce: Carbon dioxide. Carbon monoxide.

Section 11 Toxicological information

11.1 Information on toxicological effects

LC₅₀ inhalation rat, 658mg/L rat; 285000ppm/1h
ATE US, vapors, 658mg/l/4h; dust, mist, 658mg/l/4h

Acute toxicity Not classified

Skin corrosion/irritation Not classified

Serious eye damage/eye irritation Not classified

Respiratory or skin sensitization Not classified

Germ cell mutagenicity Not classified

Carcinogenicity Not classified

Reproductive toxicity Not classified

Specific target organ toxicity -
single exposure Not classified

Specific target organ toxicity -
repeated exposure Not classified

Aspiration hazard Not classified

Additional Information

When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.

Section 12 Ecological information

12.1 Toxicity

No known ecological damage caused by this product.

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12.2 Persistence and degradability

The substance is biodegradable. Unlikely to persist.

12.3 Bio-accumulative potential

BCF Fish 1, 1.57-1.97

Log Pow, 2.76

Log Kow, not applicable

Bioaccumulative potential:

Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

12.4 Mobility in soil

Not information available

12.5 Results of PBT and vPvB assessment

Results of PBT assessment No PBT substances used in the product.

12.6 Other adverse effects

No information available

Section 13 Disposal considerations

13.1 Waste treatment methods

Waste treatment methods Dispose of in accordance with local regulations.

Waste management (disposal and evaluation) Disposal must be done according to local/official regulations. Refer to manufacturer/supplier for information on recovery/recycling.

Contaminated packaging Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Section 14 Transport information

Not classified as dangerous in the meaning of transport regulations.



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

ADR/RID	IMO-IMDG	ICAO/IATA
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14.1 UN Number

1969	1969	1969
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14.2 UN Proper shipping name

Isobutane	Isobutane	Isobutane
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14.3 Transport hazard class(es)

2	2.1	2.1
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14.4	Packing Group			
	P200	P200	P200	
14.5	Special precautions for user			
	<p>Avoid transport on vehicles where the load space is not separated from the drivers compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or emergency.</p> <p>Before transporting containers:</p> <ul style="list-style-type: none"> -Ensure containers are firmly secured. -Ensure cylinder valve is closed and not leaking. -Ensure valve outlet cap nut or plug (where provided) is correctly fitted. -Ensure valve protection device (where provided) is correctly fitted. -Ensure there is adequate ventilation. -Compliance with applicable regulations. -Refrigerating appliances (Refrigerators / Freezers/ Coolers / Wine Coolers) meets requirements of Special Provision 291 of IMDG to be transported as non-dangerous goods. 			
	Overland transport	No special data available		
	Transport by sea (IMDG)	Refrigerating appliances (Refrigerators / Freezers/ Coolers / Wine Coolers) meets requirements of Special Provision 291 of IMDG to be transported as non-dangerous goods.		
	Air transport (IATA)	No special data available		
	Inland waterway transport	No special data available		
	Rail transport	No special data available		
	Transport in bulk according to Annex II of MARPOL and the IBC Code	No special data available		

Section 15 Regulatory information

15.1	Safety, health and environmental regulations/legislation specific for the substance or mixture
	<p>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, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.</p> <p>Contains no REACH substances with Annex XVII restrictions</p> <p>Contains no substance on the REACH candidate list</p> <p>Contains no REACH Annex XIV substances</p>
15.2	Chemical safety assessment
	<p>The substance is not classified for human health hazards or for environment effects and it is not PBT or vPvB so that no exposure assessment or risk characterization is required. For tasks where the intervention of workers is required, the substance must be handled in accordance with good industrial hygiene and safety procedures.</p>

Section 16 Other information

Legislation related to safety data sheets	GHS Rev.3 and European Regulation No.1272/008, No.1907/2006 and its amendments
Modifications related to the	Not applicable



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previous Safety Data Sheet which concerns the ways of managing risks

Texts of the legislative phrases mentioned in section 2 Not applicable

Texts of the legislative phrases mentioned in section 3 The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

Advice related to training Minimal training is recommended in order to prevent industrial risks for staff using this product and to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Abbreviations and acronyms
 Asp. Tox. Aspiration hazard
 Carc. Carcinogenicity
 Eye Irrit. Eye irritation
 Flam. Liq. Flammable liquids
 H225 Highly flammable liquid and vapour.
 H304 May be fatal if swallowed and enters airways.
 H314 Causes severe skin burns and eye damage.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H340 May cause genetic defects.
 H350 May cause cancer.
 H372 Causes damage to organs through prolonged or repeated exposure.
 Muta. Germ cell mutagenicity
 Skin Corr. Skin corrosion
 Skin Irrit. Skin irritation
 STOT RE Specific target organ toxicity - repeated exposure

Other information Training staff on good manufacturing practice. Manipulations are to be done only by qualified and authorized persons. Use good personal hygiene practices.

MSDS

This information applies to the PRODUCT AS SUCH and conforming to specifications of the company. In case of formulations or mixtures, it is necessary to ascertain that a new danger will not appear. The information contained is based on our knowledge of the product, at the date of publishing and it is given quite sincerely. Users are advised of possible additional hazards when the product is used in applications for which it was not intended. This sheet shall only be used and reproduced for prevention and security purposes. The references to legislative, regulatory and codes of practice documents cannot be considered as exhaustive. It is the responsibility of the person receiving the product to refer to the totality of the official documents concerning the use, the possession and the handling of the product. It is also the responsibility of the handlers of the product to pass on to any subsequent persons who will come into contact with the product. (usage, storage, cleaning of containers, other processes). The totality of the information contained within this safety data sheet and necessary for safety at work, the protection of health and the protection of environment.

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new product.



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