

# TEST REPORT

Reference No. : MSDS Cover/ GPSC1403331

Date : Mar. 08, 2014

Page No. : 1 of 1

Client's name *CIXI CITY FUHAI SHUNJI APPLIANCE CO., LTD*  
Client's address *Donghai Village, Fuhai Town, Cixi City, Zhejiang, PRC*

Product Name *Iso-Butane, R600a*  
End Uses *---*  
Export to (Please specify the country) *---*  
Composition/Ingredient *Refer to MSDS content.*  
Job Receiving Date *Mar.05, 2014*  
Preparation Period *Mar.08, 2014*

## Service Requested

Material Safety Data Sheet for the Product

## SUMMARY

The contents and format of this MSDS/SDS are in accordance with REGULATION (EC) No 1907/2006, EU Commission Directive 1999/45/EC, 1967/548/EEC.

\*\*\*\*\*



Issued by:

**TÜV NORD (Hang Zhou)**  
**Green Product Service Centre Manager**

# SAFETY DATA SHEET

Version: 0.0

Date: Mar.2014

page 1 of 6

## 1 Identification of the substance/ preparation and company/ undertaking

Product Name	R600a, ISO-butane
Company	Cixi City Fuhai Shunji Appliance Co., Ltd. Add: Donghai Village, Fuhai Town, Cixi City, Zhejiang, PRC TEL: +86-13081999801 E-Mail: 34560399@qq.com
Emergency Phone Number	+86(0)13081999801

## 2 Hazards Identification

### EC Classification of the substance or mixture

Hazard Class&amp; Category Code:

### Regulation (EC) No.1272/2008(CLP):

Physical hazards	Flammable gases – Category 1- Danger (H220) Gases under pressure – Liquefied gas – Warning (H280)
------------------	--

**Classification EC67/548 or EC 1999/45** F+; R12

Label Elements

### Labelling Regulation (EC) No.1272/2008(CLP)

Hazard pictogram(s)



GHS02



GHS04

Hazard pictograms code GHS02-GHS04

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/ 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.

### Labelling EC 67/548 or EC 1999/45

Symbol(s) F+: Extremely flammable



R Phrase(s) R12: Extremely flammable

S Safety phrase(s) S9: Keep container in a well-ventilated place.

S16: Keep away from sources of ignition.

# SAFETY DATA SHEET

Version: 0.0

Date: Mar.2014

page 2 of 6

## Other hazard

Other hazards None.

### 3 Composition/ information on ingredients

Substance/Preparation	Substances.			
Chemical name	ISO-butane			
Chemical formula	C <sub>4</sub> H <sub>10</sub> /(CH <sub>3</sub> ) <sub>2</sub> CHCH <sub>3</sub>			
Substance name	Contents	CAS no.	EC no.	Classification
Iso-butance	99.98%	75-28-5	200-857-2	F+; R12 Flam. Gas 1/H220 Liq. Gas/H280

Contains no other components or impurities which will influence the classification of the product.  
Full text of R-phrases see chapter 16.

### 4 First aid measures



The first aid advice given for skin contact, eye contact and ingestion is applicable following exposures to the liquid or spray. Also see section 11.

Inhalation	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.
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.
Eye contact	Immediately irrigate with eyewash solution or clean water, holding the eye lids apart for at least 15 minutes. Obtain immediate medical attention.
Ingestion	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.

### 5 Fire-fighting measures

Specific hazards	Exposure to fire may cause containers to rupture/explode.
Hazardous combustion products	Incomplete combustion may form carbon monoxide
Extinguishing media	
- suitable extinguishing media	All known extinguishants can be used.
Specific methods	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.

# SAFETY DATA SHEET

Version: 0.0

Date: Mar.2014

page 3 of 6

Spontaneous/explosive re-ignition may occur. Extinguish any other fire.

Special protective equipment for fire fighters

In confined space use self-contained breathing apparatus.

## 6 Accidental release measures

Personal precautions	<p>Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.</p> <p>Evacuate area.</p> <p>Ensure adequate air ventilation.</p> <p>Eliminate ignition sources.</p>
Environmental precautions	<p>Try to stop release.</p> <p>Prevent from entering sewers, basements and work-pits or any place where its accumulation can be dangerous.</p>
Clean up measures	<p>Ventilate area.</p>

## 7 Handling and storage

Handling	<p>Take precautionary measures against static discharge.</p> <p>Suck back of water into the container must be prevented.</p> <p>Purge air from systems before introducing gas.</p> <p>Do not allow back-feed into the container.</p> <p>Use properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.</p> <p>Keep away from ignition sources (including static discharges).</p> <p>Refer to suppliers container handling instructions.</p>
Storage	<p>Segregate from oxidant gases and other oxidants in store.</p> <p>Keep container below 50°C in a well ventilated place.</p>

## 8 Exposure controls/ personal protection

Personal protection	<p>Wear suitable protective clothing, gloves and eye/face protection.</p> <p>Wear thermal insulating gloves when handling liquefied gases. In cases of insufficient ventilation, where exposure to high concentrations of vapour is possible, suitable respiratory protective equipment with positive air supply should be used.</p> <p>Do not smoke while handling product.</p>
---------------------	--



Eye protection



Gloves

Occupational exposure limits Iso-butane: TLV-TWA [ppm]: 800

# SAFETY DATA SHEET

Version: 0.0

Date: Mar.2014

page 4 of 6

## 9 Physical and chemical properties

Form	Liquefied gas
Physical state at 20°C	Gas
Color	Colorless
Odor	Sweetish. Poor warning properties at low concentrations.
Molecular weight	58
Solubility in water [mg/L]	54
Boiling point, °C	-11.8
Melting point, °C	-159.0
Relative density, gas (air=1)	2.01
Relative density, liquid (water=1)	0.56
Vapour pressure	3bar
Flammability range [vol% in air]	1.8-8.5
Auto ignition temperature (°C)	460
Saturation vapor pressure, kPa	160.09(0°C)
Critical Temperature, °C	135
Flash point, °C	-82.8
Other data	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

## 10 Stability and reactivity

Hazardous decomposition products	None.
Incompatible materials	Can form explosive mixture with air. May react violently with oxidants. Air, oxidiser.
Conditions to avoid	Keep away from heat, sparks, open flames, hot surfaces. No smoking.

## 11 Toxicological information

Toxicity information	No known toxicological effects from this product.
----------------------	---

## 12 Ecological information

Ecological effects information	No known ecological damage caused by this product.
--------------------------------	--

## 13 Disposal information

General	Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flashback arrestor. Do not discharge into a place where its accumulation could be dangerous. Contact supplier if guidance is needed.
---------	---

## SAFETY DATA SHEET

Version: 0.0

Date: Mar.2014

page 5 of 6

**14 Transport information**

UN No. 1969

Labelling ADR, IMDG, IATA



2.1 Flammable Gas

**Land transport**

ADR/RID

H.i.nr 23

UN Proper shipping name ISO-butane

Transport hazard class(es) 2

-ADT/RID classification code 2F

-Packing instruction(s)-general P200

-Tunnel instructions B/D Tank carriage: Passage forbidden through tunnels of category B, C, D and E;  
Other carriage: Passage forbidden through tunnels of category D and E.

**Sea transport**

-IMO-IMDG Code

Proper shipping name ISO-butane

Class 2.1

-IMO packing group P200

-Emergency schedule (EmS)- F-D

Fire

-Emergency schedule (EmS)- S-U

Spillage

Instructions-Packing P200

**Air transport**

-ICAO/IATA

Proper shipping name Iso-butane

Class 2.1

Passenger and cargo aircart -

Cargo aircraft only

-Packing instruction P200

# SAFETY DATA SHEET

Version: 0.0

Date: Mar.2014

page 6 of 6

## Special Reminder

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.

Before transporting containers:

- 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.

## 15 Regulatory information

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

Ensure all national/local regulations are observed.

SEVESO Regulation 96/82/EC

Listed.

## 16 Other information

Ensure operators understand the flammability hazard.

Contact with liquid may cause burns/frostbite.

The hazard of asphyxiation is often overlooked and must be stressed during operator training.

List of full text of R-phrases in section 3 : R12 : Extremely flammable.

This datasheet was prepared in accordance with Regulation (EC) No. 1907/2006.

Information in this publication is believed to be accurate and is given in good faith but it is for the user to satisfy itself of the suitability for its own particular purpose. Accordingly, Cixi City Fuhai Shunji Appliance Co., Ltd. gives no warranty as to the fitness of the product for any particular purpose and any implied warranty or condition, statutory or otherwise, is excluded except to the extent that such exclusion is prevented by law.