

Report No. NB2022076006EN

Date: July 14, 2022

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**Applicant Name** : NANJING REFINERY CO., LTD

**Applicant Address** : 388# GANJIAXIANG STREET, QIXIA DISTRICT, NANJING

**Product Name** : Refrigerant R600a (isobutane)

**Received Date** : July 12, 2022

**Compilation Period** : July 12, 2022 to July 14, 2022

**Regulatory Requirements** : As requested by the applicant, the Safety Data Sheet is prepared according to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Rev\_8 (2019) .

Signed for and on behalf of Guangdong NewBest Testing Service Co., Ltd.

Approved by:



Manager



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No.1,8/F,Shengfeng Road, Venture Industrial Park, Xinhe Community, Wanjiang District, Dongguan City, China

Tel: 400-877-6107

Website:

Fax: 0769-22777508

E-mail: [newbest@nbscn.com](mailto:newbest@nbscn.com)

## SECTION 1. Identification of the substance/preparation and company

<b>1.1 Product Identification</b>	: Refrigerant R600a (isobutane)
<b>1.2 Model No.</b>	: R600a
<b>1.3 Recommended Use</b>	: /
<b>1.4 Manufacturer Name</b>	: NANJING REFINERY CO., LTD
<b>1.5 Manufacturer Address</b>	: 388# GANJIAXIANG STREET, QIXIA DISTRICT, NANJING
<b>1.6 Manufacturer Tel</b>	: 025-58989858
<b>1.7 Manufacturer Fax</b>	: /
<b>1.8 Manufacturer Email</b>	: /
<b>1.9 Emergency Phone</b>	: 025-85477110

## SECTION 2. Hazards identifications

### 2.1 Hazard Class:

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Rev\_8 (part 2~4), classification of risk categories.

Flammable gas, category 1

High pressure gas, compressed gas

### 2.2 Pictograms:



### 2.3 Signal word:

Danger

### 2.4 Hazard description:

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

### 2.5 Precautionary description:

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



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## SECTION 3. Composition / information on ingredients

Ingredient(s) of the product: Pure

Substance name	Conc. (%)	CAS. No
Isobutane	≥99.9	75-28-5

## SECTION 4. First aid measures

General advice: Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.

### 4.1 Following inhalation:

If feeling uncomfortable, victim should be moved into fresh air. Seek medical attention.

### 4.2 Following skin contact:

Take off contaminated clothing and shoes immediately. Wash off with plenty of water for at least 15 minutes and consult a physician if feeling uncomfortable.

### 4.3 Following eye contact:

In case of contact may cause irritation, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician immediately if eyes are hurt.

### 4.4 Following ingestion:

If it is ingested, Seek medical attention.

## SECTION 5. Firefighting measures

### 5.1 Hazardous Characteristics:

Flammable gas.

Will form explosive mixtures with air.

Containers exposed to fire may release the contents through pressure relief valves thereby increasing fire intensity and/ or vapour concentration.

Vapours may travel to source of ignition and flash back.

### 5.2 Extinguishing Media:

Dry powder, Chemical foam, Carbon dioxide, water mist.



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**5.3 Firefighting procedures:**

As in any fire, wear self-contained breathing apparatus(MSHA/NIOSH approved or equivalent)and full protective gear.

Extinguish fire in a safe distance with enough protection

**5.4 Hazardous combustion products:**

Carbon monoxide

**SECTION 6. Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures:**

Wear appropriate protective measures (SEE SECTION 8).

Beware of vapours accumulating to form explosive concentrations.

Ensure adequate ventilation.

Remove all sources of ignition.

Evacuate personnel to safe areas. Keep people away from upwind of spill/leak.

**6.2 Environmental precautions:**

Discharge into the environment must be avoided.

**6.3 Cleaning method:**

Strengthen ventilated.

**SECTION 7. Safe handling and storage****7.1 Handling Notes:**

Keep indoor ventilation or local exhaust device.

Stay away from heat and direct sunlight.

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

**7.2 Storage Notes:**

Stored in cool and dry condition

Store in a well-ventilated place.

Do not store with incompatible material (see section 10.2)



## SECTION 8. Exposure controls / personal protection

### 8.1 Occupational Exposure Limit:


Substance	Country/Region	Occupational exposure limit (8h)		Occupational exposure limit (short time)	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Isobutane	Germany(AGS)	1000	1800	/	/

### 8.2 Engineering Control:

Provide adequate ventilation. Where reasonably practicable, this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and solvent vapour below the OEL, suitable respiratory protection must be worn.

Ensure that eyewash stations and safety showers are proximal to the work-station location.

### 8.3 Personal Protection:

General requirement:	
Respiratory:	If exposure limits are exceeded or if irritation or other symptoms are experienced, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges.
Eyes:	Wear protective goggle (Conform to EC EN 166 or US-NIOSH).
Hands:	Wear antifreeze gloves.

### 8.4 Sanitary Measure:

Forbid smoking, eating and drinking in working places. Washing hands after handling products.

## SECTION 9. Physical and chemical properties

Appearance and Color	Colorless gas
Odour	Odorless
PH value	No Data



<b>Flammability</b>	Combustible
<b>Density</b>	No Data
<b>Relative steam density (air = 1)</b>	2.01 (20℃)
<b>Vapor pressure(MPa)</b>	304(20℃)
<b>Octanol/water partition coefficient</b>	No Data
<b>Viscosity</b>	Not Applicable
<b>Flash point(℃,Closed cup)</b>	-82.8
<b>Boiling point(℃)</b>	-12
<b>Melting point (℃)</b>	-160
<b>Evaporation rate (kg/s)</b>	No Data
<b>UEL %(V/V)</b>	1.4
<b>LEL %(V/V)</b>	8.5
<b>Auto-ignition temperature(℃)</b>	No Data
<b>Decomposition temperature(℃)</b>	No Data
<b>Solubility</b>	Insoluble in water

## SECTION 10. Stability and reactivity

### 10.1 Stability:

Stable under recommended storage and handling conditions (See section 7).

### 10.2 Material for avoiding:

Strong oxide, acid, alkali, naked light.

### 10.3 Contact conditions for avoiding:

Sunlight, high temperature.

### 10.4 Hazardous decomposition products:

Under normal conditions of storage and use, hazardous decomposition products should not be produced.



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## SECTION 11. Toxicological information

### 11.1 Acute toxicity:

Based on available data, the classification criteria are not met.

### 11.2 Skin corrosion/irritation:

Based on available data, the classification criteria are not met.

### 11.3 Serious eye damage/irritation:

Based on available data, the classification criteria are not met.

### 11.4 Respiratory or skin sensitisation:

Based on available data, the classification criteria are not met.

### 11.5 Germ cell mutagenicity:

Based on available data, the classification criteria are not met.

### 11.6 Carcinogenicity:

Based on available data, the classification criteria are not met.

### 11.7 Reproductive toxicity:

Based on available data, the classification criteria are not met.

### 11.8 STOT-single exposure:

Based on available data, the classification criteria are not met.

### 11.9 STOT-repeated exposure:

Based on available data, the classification criteria are not met.

### 11.10 Aspiration hazard.:

Based on available data, the classification criteria are not met.

## SECTION 12. Ecological information

### 12.1 Toxicity:

No data available.

### 12.2 Persistence and degradability:

No data available.

### 12.3 Bioaccumulative potential:



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No data available.

**12.4 Mobility in soil**

No data available.

**12.5 Other Dangers:**

No data available.

### SECTION 13. Disposal considerations


**13.1 Handling method for waste:**

Handling waste according to the local regulations. Contact specific waste disposal company or companies recommended by local laws.

**13.2 Handling method for uncleaned 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.

### SECTION 14. Transport information

<b>Packaging Label</b>	
<b>UN NO</b>	1969
<b>Technical name</b>	ISOBUTANE
<b>Transport hazard class</b>	2.1
<b>Subsidiary hazard class</b>	None
<b>Packing group</b>	Not Applicable
<b>Marine pollutant</b>	No

**Transportation Precautions:** Shipment of the goods vehicle exhaust pipe must be equipped with fire retardant devices, prohibit using mechanical equipment and toolsof 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. 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

## SECTION 15. Regulatory information

### 15.1 Safety, health and environmental regulations / laws for pure substances or mixtures

#### Catalogue of hazardous chemicals (2015 Edition)

Catalog number of hazardous chemicals: 2707

CAS No.: 75-28-5

English name: isobutane|2-methyl-propane

### 15.2 Safety assessment of chemical substances

Not evaluated

## SECTION 16. Other information

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the result of its use, this information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

\*\*\*\*\* END \*\*\*\*\*



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