

**NFPA ratings**

Flammability: 1  
Physical hazard: 3  
Health: 3  
Flammability: 1  
Instability: 3

**Disclaimer**

The information in the sheet was written based on the best knowledge and experience currently available.

**Issue date**

04-29-2015

**Safety Data Sheet**  
**According to Hazard Communication Standard (29 CFR 1910.1200)**

R23

Issue date: 04/29/2015

Version 1.0

Revision date: 04/29/2015

## 1. Identification

**Product name** R23  
**Synonyms** -  
**CAS #** See section 3  
**Product code** -  
**Product use** Refrigerant.  
**Manufacturer/Supplier**  
**Supplier(Manufacturer):** ZHEJIANG YONGHE REFRIGERANT CO.,LTD.  
**Address:** No.E-025, Donggang Industrial Park, Quzhou City, Zhejiang Province, China  
**Contact person(E-mail):** Yonghe\_gas4@qhyh.com  
**Telephone:** +86 571-3832780  
**Fax:** +86 570-8888404  
**Emergency telephone Number:** +86 571-3832780

## 2. Hazard(s) identification

### GHS classification

<b>Physical hazards</b>	Gases under pressure	Liquefied gas
<b>Health hazards</b>	Not classified	
<b>Environmental hazards</b>	Not classified	

### GHS label elements

#### Hazard Pictograms



<b>Signal word</b>	Warning
<b>Hazard statement</b>	Contains gas under pressure; may explode if heated.
<b>Precautionary statement</b>	
<b>Prevention</b>	Not applicable.
<b>Response</b>	Not applicable.
<b>Storage</b>	Protect from sunlight. Store in a well-ventilated place.
<b>Disposal</b>	Not applicable.

## 3. Composition / information on ingredients

Components	CAS#	Percent
Trifluoromethane	75-46-7	≥99.8%

## 4. First-aid Measures

### First aid procedures

**Eye contact** If in eyes, immediately flush with plenty of water. Get medical attention if irritation

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persists.

**Skin contact**

If on skin, flush exposed skin with lukewarm water (not hot), or use other means to warm skin slowly. Get medical attention if frostbitten by liquid or if irritation occurs.

**Inhalation**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. Do not give adrenaline, epinephrine or similar drugs following exposure to this product.

**Ingestion**

If swallowed, not applicable - product is a gas at ambient temperatures.

**Notes to physician**

Treat symptoms.

**5. Fire-fighting measures**

**Flammable properties**

Not available.

**Extinguishing media**

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Unsuitable extinguishing media**

Not available.

**Firefighting equipment/instructions**

Shut off gas supply if this can be done safely. Use water spray on person making shut-off. Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire-fighting equipment should be thoroughly decontaminated after use.

**Hazardous combustion products**

Hydrogen fluoride, fluorinated compounds, carbon oxides.

**6. Accidental release measures**

**Personal precautions**

Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (section 8). Shut off gas supply if this can be done safely. Isolate area until gas has dispersed.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods for cleaning up**

Use Halogen leak detector or other suitable means to locate leaks or check atmosphere. Keep upwind. Evacuate enclosed spaces and disperse gas with floor-level forced-air ventilation. Exhaust vapors outdoors. Do not smoke or operate internal combustion engines. Remove flames and heating elements.

**7. Handling and storage**

**Handling**

Avoid breathing gas. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Do not enter confined spaces unless adequately ventilated.

**Storage**

Do not apply direct flame to cylinder. Do not store cylinder in direct sun or expose it to heat above 120°F. Do not drop or refill this cylinder. Keep away from heat, sparks and flames.

**8. Exposure controls / personal protection**

**Control parameters:**

**OCCUPATIONAL EXPOSURE LIMITS (OEL)**

**INGREDIENT DATA:**

Not Available

**EMERGENCY LIMITS:**

Ingredient	TEEL-1	TEEL-2	TEEL-3
Trifluoromethane	64 ppm	700 ppm	4200 ppm

Ingredient	Original IDLH	Revised IDLH
Trifluoromethane	Not Available	Not Available

**Exposure controls:**

**Appropriate engineering controls:** Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Individual protection measures, such as personal protective equipment:**

**Eye / face protection** Sufficient eye protection should be worn. When handling compressed gas, at least glasses with side protection should be worn. When handling liquid gas, chemical safety goggles must be used as well as a protective shield.

**Skin protection** Body protection: Use protective boots while handling gas cylinders.  
Hand protection: Wear leather gloves to prevent frostbite injuries from rapidly expanding gas when handling pressurized gas bottles.

**Respiratory protection** In an emergency (e.g.: unintentional release of the substance, exceeding the occupational exposure limit value) respiratory protection must be worn. Consider the maximum period for wear. Wear self-contained breathing apparatus. Do not use filter respirator.

**General hygiene considerations** Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.

## 9. Physical and chemical properties

### Appearance

**Physical state** Gas  
**Form** Compressed liquefied gas  
**Color** Clear, colorless

**Odor** Faint ether odor

**Odor threshold** Not available

**pH** Not available

**Vapor pressure** 47054 hPa(25 °C)

**Melting point/Freezing point** -155.1 °C

**initial boiling point and boiling range** -82.03 °C

**Flash point** Not available

**Evaporation rate** Not available

**Flammability (solid, gas)** Non flammable

**Explosion limits** Not available

**Vapor density** Not available

**Relative density** Not available

**Solubility (water)** Slight

Partition coefficient	0.84(25 °C)
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Specific gravity	Not available
Density	Not available
Flammability limits in air, upper, %by volume	Not available
Flammability limits in air, lower, % by volume	Not available
VOC	Not available
Percent volatile	Not available
<b>Other data</b>	
Viscosity	Not available
Relative Vapor Density:	2.4

## 10. Stability and reactivity

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Incompatible materials. Avoid open flames and high temperatures. Keep at temperature not exceeding 52 °C.
Incompatible materials	Alkali metals, Alkaline earth metals, Powdered metals, Powdered metal salts.
Hazardous decomposition products	Hazardous thermal decomposition products may include: Hydrogen fluoride, carbon oxides, fluorocarbons, carbonyl fluoride.
Possibility of hazardous reactions	The substance can react dangerously with: alkali/alkaline earth metals, oxidizing agents metals and their powders.

## 11. Toxicological information

### Toxicokinetics, metabolism and distribution:

Non-human toxicological data: Not available

### Information on toxicological effects:

#### Acute toxicity:

LD50(Oral, Rat):	Not available
LD50(Dermal, Rabbit):	Not available
LC50(Inhalation, Rat):	> 663000 ppm 4H
Skin corrosion/Irritation:	Not classified.
Serious eye damage/Irritation:	Not classified
Respiratory or skin sensitization:	Not classified
Germ cell mutagenicity:	Not classified
Carcinogenicity:	Not classified
Reproductive toxicity:	Not classified
STOT- single exposure:	Not classified
STOT-repeated exposure:	Not classified
Aspiration hazard:	Not classified

## 12. Ecological information

### Toxicity:

Acute toxicity	Time	Species	Method	Evaluation	Remarks

LC50	N/A	96h	Fish	OECD 203	N/A	N/A
EC50	N/A	48h	Daphnia	OECD 202	N/A	N/A
EC50	N/A	72h	Algae	OECD 201	N/A	N/A

Highly chlorinated/fluorinated compounds are not expected to biodegrade rapidly. (HSDB).

**Persistence and degradability:**

**Bioaccumulative potential:**

Bioconcentration in aquatic organisms is low.

**Mobility in soil:**

The product is expected to have high mobility in soil (HSDB).

**Results of PBT&vPvB assessment:**

The substance is not PBT / vPvB.

**Other adverse effects:**

No known significant effects or critical hazards.

### 13. Disposal considerations

**Disposal instructions**

Dispose of contents/container in accordance with local/regional/national/international regulations.

**Contaminated packaging**

Since emptied containers may retain product residue, follow label warnings even after container is emptied.

### 14. Transport information

**DOT**

**Basic shipping requirements:**

**UN number**

UN1984

**Proper shipping name**

TRIFLUOROMETHANE (REFRIGERANT GAS R 23)

**Hazard class**

2.2

**Packing group**

-

**Environmental hazards**

No

**IATA**

**UN number**

UN1984

**UN proper shipping name**

TRIFLUOROMETHANE (REFRIGERANT GAS R 23)

**Transport hazard class(es)**

2.2

**Packing group**

-

**Environmental hazards**

No

**IMDG**

**UN number**

UN1984

**UN proper shipping name**

TRIFLUOROMETHANE (REFRIGERANT GAS R 23)

**Transport hazard class(es)**

2.2

**Packing group**

-

**Environmental hazards**

No

### 15. Regulatory information

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

<b>Trifluoromethane (75-46-7) is found on the following regulatory lists</b>	"US - Hawaii Air Contaminant Limits" List. "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory" List.
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### 16. Other information, including date of preparation or last revision

**HMIS® ratings**

Health: 3

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