Difluoromethane
（R32）

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product name：Difluoromethane；Refrigerant GAS R32

Company name：Zhejiang Quhua Fluor-Chemistry Co., Ltd.

Address：Kecheng district, Quzhou, Zhejiang province

Zip：324004

Contact number：0086-570-3614400

Emergency Number：0570-3097819

National fire-fighting number：119

Fax：0086-570-3098687

E-mail：fhgsb@juhua.com.cn

SDS code：SDS/FH 09-2013

Originally constructed：October, 2010

Revised date：January 1, 2021

Main application：It is mainly used as a dry cutting agent, a substitute for r-502, or a mixed refrigerant with HFC-134a and HFC-152a to replace HCFC-22

Restricted application：No information

2. HAZARD PROFILE

GHS risk category:

Physical hazard	Health hazard	Environment hazard
Inflammable gas: category 1 Pressurized gas: classified as liquefied gas	Unclassfied	Unclassfied

Label elements and warning instructions:

Hazard Pictogram:

Signal word: Warning

Hazard statement: It contains pressurized gas, which may explode when heated.

[PREVENTIVE MEASURES]

- Keep away from heat sources, sparks, open flames, and hot surfaces.
- No smoking.
- When the pressure in the hot container increases, there is a risk of explosion
- Take measures to prevent static electricity

[EMERGENCY RESPONSE]

- Leaks can catch fire: do not put out a fire unless leaked gas can be safely stopped
- Remove all ignition sources if there is no danger in doing so

[STORAGE]

- Store in a cool, well-ventilated place
- Protect from sun

DISPOSAL AND TREATMENT]

- Dispose according to national and local regulations, or contact the manufacturer for disposal.

Main symptoms: It is non-toxic under normal temperature and can cause rapid asphyxiation

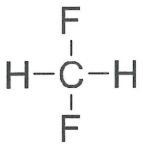
Emergency summary: in the event of an accident or when you feel unwell, seek medical advice immediately (show safety label and SDS whenever possible).

3. COMPOSITION / INFORMATION ON INGREDIENTS

pure ☑ mixed ☐

Chemical name: Difluoromethane

formula: CH_2F_2



Molecular mass: 52. 0234

Hazard ingredient	Content (%)	CAS №
Difluoromethane	≥99.80	75-10-5

4. FIRST AID MEASURES

Inhalation: quickly remove from site to fresh air. Keep respiratory tract open. If breathing becomes difficult, administer oxygen. Cardiopulmonary resuscitation (CPR) should be performed immediately when breathing and heartbeat stop. Go to a doctor.

Skin contact: Rinse with warm water below 41℃. For large dose burns, remove clothing and shower with warm water. Seek medical advice for frostbite

Eye contact: Rinse with warm water for at least 15 minutes, lift eyelid and rinse with flowing water or normal saline. If you feel unwell, seek medical advice.

Ingestion: no contact through this route.

Main symptoms: Can cause rapid asphyxiation. High concentration of steam can cause disorientation, dizziness, nausea, vomiting, anesthesia, cardiac rhythm disorders, low blood pressure, very high concentration can cause asphyxiation and death. Contact with liquid products can cause frostbite and other damage to skin and eyes.

Medical precautions: be sure to let medical personnel know about the substance involved and take protective measures to protect themselves. To keep patients under observation, appropriate measures should be taken to prevent shock, dyspnea, spasm and other delayed symptoms. Show this SDS to the doctor at the scene.

5. FIRE FIGHTING MEASURES

Fire extinguishing method: Cut off the gas source immediately when there is a fire around. If the gas source cannot be cut off, it is not allowed to extinguish the burning

gas, spray water to cool the container, and move the container from the fire site to an open space if possible.

Suitable extinguishing agent: Fog water, foam, carbon dioxide fire extinguisher.

Inappropriate extinguishing agent: no data available.

Harmful combustion products: Carbon dioxide, hydrogen fluoride, CFC

Special danger: In case of high heat, the pressure in the container increases, there is a risk of cracking and explosion. If mixed with air it could form into an explosive mixture, in case of spark or high heat energy could cause an explosion, and phosgene generation.

Special fire extinguishing method: Cut off the air source. If the air source cannot be cut off, the flame at the leakage shall not be extinguished. Fire personnel must wear air breathing apparatus, wear full body fire and gas protective clothing, and fight the fire upwind. Move the container as far as possible from the fire site to an open area. The water spray will keep the container cool until the fire is put out.

Special protective equipment for fire-fighting personnel: Fire-fighting personnel shall wear positive pressure air breathing apparatus and full-body fire-fighting clothes.

6. ACCIDENTAL RELEASE MEASURES

Protective measures, protective equipment and emergency disposal procedures for operators: Eliminate all ignition sources, delimit warning zone according to the influence of vapor diffusion zone, irrelevant personnel shall be evacuated to the safe area from crosswind and upwind. It is suggested that emergency workers wear positive pressure self-contained breathing apparatus. All equipment used in the operation shall be connected to the ground. Spray water to inhibit steam or changes the direction of the vapor cloud, preventing water from coming into contact with the leakage. Do not use water to directly impact the leaking substance or source.

Environmental protection measures: cut off the source of leakage as much as possible. Prevent the diffusion of gas through sewers, ventilation systems and closed Spaces.

Methods of receiving and removing the leaking chemicals and the materials used for disposal: Disposal by controlled incineration. The hydrogen halide discharged from the incinerator is removed by the acid scrubber.

Precautions against secondary hazards: no data available.

7. HANDLING AND STORAGE

Operation handling

Precautions for safe handling: closed operation, entirely ventilation. Operators must be specially trained to strictly follow the operation procedures. Keep away from inflammable and combustible materials. Prevent gas leakage into the workplace air.

Avoid contact with oxidants. Handle with care to prevent cylinder and accessories from being damaged. Be equipped with leakage emergency treatment equipment.

Storage

Safe storage conditions: store in a cool, ventilated storage room. Stay away from fire and heat. Storage temperature should not exceed over 30 ℃.

Storage technical measures: Use explosion-proof lighting and ventilation facilities. Mechanical equipment and tools that are prone to spark generation are prohibited. The storage area should be equipped with leakage emergency treatment equipment.

Forbidden materials: it should be stored separately from inflammable materials and oxidants. Mixed storage should be avoided.

Packing material: usually packed in cylinders

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure limits:

China: no data

United States DUPONT-TWA: 1000ppm(8/12hr)

Engineering control method: tightly sealed, providing adequate overall ventilation.

Respiratory protection: generally no special protection is required. When the concentration in the air exceeds the limit, wear the corresponding filter gas mask (half mask).

Hand protection: wear protective gloves for general operation.

Eye protection: Wear protective glasses.

Skin and body protection: wear general work clothes.

Other protection: avoid high concentration inhalation. Operating in tanks, restricted spaces or other high-concentration areas requires supervision.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: colorless gas

ODOR: With ether flavour

pH: Not applicable

MELTING POINT(℃): -136

BOILING POINT(℃): -51.7

FLASH POINT: Not applicable

UPPER EXPLOSIVE LIMIT: 33.4

LOWER EXPLOSIVE LIMIT: 12.7

Saturated vapor pressure (kPa): 202. 65 (28. 4℃)

Relative vapor density (air =1): 1.8

Relative density (water =1): 1.1

Solubility: soluble in water, 4.4g/l (25℃)

N - octanol/water partition coefficient: no data
Decomposition temperature: no data
Ignition temperature (℃): N/A
Combustion heat (kJ/mol): no data
Critical temperature (℃): 78.25
Critical pressure (MPa): 5.83

10. STABILITY AND REACTIVITY

STABILITY: Stable
HAZARDOUS REACTION: no data available.
CONDITIONS THAT SHOULD BE AVOIDED: open fire, high temperature
INCOMPATIBILITIES: Strong oxidant, alkaline earth metal,
HAZARDOUS DECOMPOSITION PRODUCTS: hydrogen chloride, fluorocarbon

11.TOXICOLOGICAL INFORMATION

Acute toxicity:
LD_{50}: no data available
LC_{50}: 49900mg/m^3, 4hours, mice inhale.
Skin irritation or corrosion: no data available.
Eye irritation or corrosion: no data available.
Respiratory or skin irritation: no data available.
Mutagenesis: no data available.
Teratogenicity: no data available.
Carcinogenicity: no data available.
Reproductive toxicity: no data available.
Specific target organ systemic toxicity - single exposure: no data available.
Specific target organ systemic toxicity - repeated exposure: no data available.
Inhalation hazard: no data available.
Toxicokinetics, metabolism and distribution: no data available.

12. ECOLOGICAL INFORMATION

Ecotoxicity: fish: LC_{50} = 1507 mg/l/96h
shell: EC_{50} = 652 mg/l/48h
algae: EC_{50} = 142 mg/l/96h
Persistence and degradability: no data available
Biodegradability: no data available;
Potential bioaccumulation: no data;
Mobility in soil: no data available;
Other harmful effects: no data available

13. DISPOSAL CONSIDERATIONS

Nature of waste: hazardous waste.
Disposal method: Disposal by controlled incineration. The hydrogen halide discharged from the incinerator is removed by the acid scrubber.
Discard note: Before disposal should refer to the relevant national and local laws and regulations. Return the empty container to the manufacturer or bury it in a designated place.

14. TRANSPORT INFORMATION

United Nations dangerous goods code: 3252
United Nations transport name: Difluoromethane
United Nations classification of hazards: class 2.1 non-flammable non-toxic gases
China dangerous goods No.: no data
Packaging categories: III class package.

Packing mark:

Marine pollutant: No
Notes for transport: Before transportation, it is necessary to check whether the packaging container is complete and sealed. During transportation, it is necessary to ensure that the container does not leak, collapse, fall or damage. It is strictly prohibited to mix with strong alkali, active metal, oxidant, food and food additives. Transport vehicles should be equipped with the appropriate variety and number of fire equipment and leakage emergency treatment equipment. Avoid exposure, rain and high temperature during transportation. Road transport should be driven according to the prescribed route.

15. Regulations information

Safety Production law of the People's Republic of China (adopted at the 28th meeting of the ninth NPC standing committee on June 29, 2002);
Occupational disease prevention and control law of the People's Republic of China (adopted at the 24th session of the 11th NPC standing committee on December 31, 2011);
Environmental protection law of the People's Republic of China (adopted at the 11th session of the seventh NPC standing committee on December 26, 1989);

The regulations on the safety management of hazardous chemicals (no. 591 of the state council, which came into force on December 1, 2011) stipulates relevant provisions on the safety management of the production, storage, use, operation and transportation of hazardous chemicals.
The disposal of abandoned hazardous chemicals shall be carried out in accordance with the relevant laws and administrative regulations on environmental protection and the relevant provisions of the state;
Regulations on the safe use of chemicals in the workplace (no. 423 [1996] issued by the ministry of labor);
Regulations on labor protection in workplaces where toxic substances are used (no. 352 of the state council);
Dangerous goods name table (GB12268-2012);
List of the first batch of hazardous chemicals under key supervision (safety supervision general manager [2011] no. 95);
Notice on issuance of the first batch of notice on the safety measures and emergency disposal principles of hazardous chemicals under key supervision
Occupational exposure limits for hazardous factors in the workplace - part 1: chemical hazardous factors (GBZ2.1-2007);
Contents and project sequence of chemical safety technical specification (GB/ t16483-2008);
Regulations on preparation of chemical safety labels (GB 15258-2009)
Guidelines for compilation of chemical safety technical specifications (GB/T 17519-2013);
Specification for classification and labelling of chemicals (GB 30,000-2013);
Catalogue of hazardous chemicals (2015 edition) published by the state administration of safety;Implementation guidelines for the catalogue of hazardous chemicals (2015 edition) (trial);Hazardous chemicals classification information table.

16. Other informations

The information contained in this SDS is compiled according to our knowledge and used only for health, safety and environmental purposes. Please do not use this information as any form of warranty. Please provide necessary training to the personnel who may use, dispose and need to operate the product safely.