

**Difluoromethane**  
**(R32)**  
**Material Safety Data Sheet**

**Company name:** ZHEJIANG QUHUA FLUOR-CHEMISTRY CO., LTD

**Address:** Juhua Group Corporation Quzhou city, Zhejaing province

**Emergency telephone:** 0570-3614400

**Effective date:** July 1, 2016

## 1 The chemical and logo of enterprise

**Name:** difluoromethane

**Chemical name:** R32

**Manufacturer name:** ZHEJIANG QUHUA FLUOR-CHEMISTRY CO., LTD

**Address:** Juhua Group Corporation Quzhou city, Zhejaing province

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**MSDS number:** SDS/FH 09-2013

**Date of first compilation:** August, 2010

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**Main applications:** mainly used as dry etching agent, and as a substitute for low-temperature refrigerant R-502, or mixed respectively with HFC-134a or HFC-152A to form new blended refrigerant to replace HCFC-22

**Restricted use:** no data available

## Part 2 Description of hazard

**GHS hazard category:**

Physical hazard	Health hazard	Environment hazard
Flammable gas: 1 category	Un-classification	Un-classification
high-pressure gas: Liquefied gas		

**Labeling and precautionary illustration:**

**pictographic chart:**



**Key word:** hazard

**Hazard description:** high inflammable gas, high pressure gas, explosive when heated

**Precaution:**

**Route of entry:** inhalation

**Health hazard:** This material is a colourless gas, smell like ether, no toxic under normal temperature, it could quickly cause asphyxia. When in high density, it could cause disorientation, dizziness, nausea, vomit, narcotism, arrhythmia, low blood pressure, in extremely high density, it could cause death due to asphyxia. When contact with skin or eye, it cause frostbit,etc.

**Environmental hazards:** ODP value is zero, no hazardous to environment, it is one of alternative for F22.

**Burning and explosive hazards:** This material is inflammable gas, easy to be compressed and liquefied. In high temperature, the interior pressure in container increase, have potential for rupture and explosion.

### Part 3 Information of component/ingredient

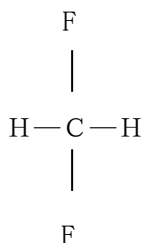
pure  mixture

chemical name: difluoromethane

product name: HFC-32; R32; F32.

molecular formula:  $\text{CH}_2\text{F}_2$ .

Structural formula:



Molecular weight: 52.0234

Hazard name	content (%)	CAS No
difluoromethane	$\geq 99.80$	75-10-5

### Part 4 Emergency measure

**Skin contact:** Using lukewarm water under 41°C. When contact with high dose, take off the contaminated cloth, wash with lukewarm water. If frostbite, admitted to

hospital.

**Eye contact:** Using lukewarm water to wash for at least 15 minutes, hold up eyelid, use running clean water or physiological saline solution to wash, admitted to hospital.

**Inhalation:** Leave working field, go to the place with fresh air immediately. Keep respiratory tract open. Supply oxygen If breathing is difficult,. If heartbeat and breathe stop, execute artificial respiration immediately and admitted to hospital.

**Digestion:** No information available.

## **Part5 Fire fighting measure**

**Hazard property:** In high temperature, the interior pressure in container increase, have potential for rupture and explosion.

**Hazardous product of combustion:** Carbon dioxide, hydrogen fluoride, Fluorocarbon acid.

**Extinguish method and extinguish agent:** inflammable. When fire break out, cut of the gas source immediately. If gas source can not be cut off, it is not allowed to extinguish the burning gas, spray water to cool container, if possible, remove the container to open area.

Precaution and measure for fire-fighting: wear dedicated protection cloth and self-containing positive pressure inhaler, extinguish the fire on the windward side.

## **Part 6 Emergency measure for leakage**

**Emergency measure:** evacuate people in contained area to windward side, keep in quarantine, access is strictly limited. Emergency team should wear positive pressure inhaler and appropriate working cloth. Remove all fire source, spray with foggy water; Cut off leak source, ventilate or remove the container to open area, dilute and diffuse monitor the density of gas in leaked area. The container with leaked should not be reused, using technologic treatment to eliminate the remaining gas.

**Elimination method:** ventilate in appropriate way, accelerate the rate of diffusion.

## **Part 7 Handling Dispose and storage**

**Handling and dispose:** Operate in close area with sufficient ventilation. Operator should be specially trained, observe the regulation of operation. Keep away from inflammable material. When the density surpass the requirement, operator should wear self-contained breathe apparatus, wear appropriate cloth and goggle. Prevent gas leaking to the air on the operation field. Avoid contact with oxide. Handle carefully. Prevent cylinder and auxiliary part from damaged. Install with anti-leak emergency equipment.

**Storage:** This product should be kept in cool and ventilated place. Keep away from fire or heat source. The temperature in storage should not surpass 30°C, avoid sunshine, store separately from oxide, inflammable material, food-grade chemical, not

mix up. At the storage area, there should be outfitted with anti-leak emergency equipment. When accepting the product, pay attention to the name of the chemical, the date of testing, first checking in, first check out.

## **Part 8 Contract Control /Personnel Protection**

### **Maximum density:**

China MAC ( $\text{mg}/\text{m}^3$ ): not available

China PC-TWA ( $\text{mg}/\text{m}^3$ ): not available

China PC-STEL ( $\text{mg}/\text{m}^3$ ): not available

Soviet Union MAC ( $\text{mg}/\text{m}^3$ ): not available

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

United States TLV-STEL: not available

**Monitoring method:** gas chromatography

**Engineering control:** Operate in closed area, fully ventilated

**Respiration protection:** There is no need for special protection, when contact with high concentration, wear self-containing filter mask (half mask).

**Eye protection:** Wear chemical protective goggles.

**Body protection:** Wear appropriate protective working clothes.

**Hand protection:** Wear appropriate protective gloves.

**Other protection:** Avoid inhale gas of high concentration. When enter into column, limited space or other high concentration area, appoint person specially to monitor.

## **Part 9 Physical and Chemical property**

**Appearance and properties:** colourless liquid with a slight scent of ether.

**PH value:** not available.

**Melting point:**  $-136^{\circ}\text{C}$

**Boiling point:**  $-51.7^{\circ}\text{C}$

**Relative density:** 1.1

**Relative vapour density:** 1.8

**Saturated vapour pressure:**  $202.65\text{kg}/\text{m}^3$  ( $28.4^{\circ}\text{C}$ )

**Critical temperature ( $^{\circ}\text{C}$ ):** 78.25

**Critical pressure (MPa):** 5.83

**Octanol/water logarithm value:** not available

**Flash point ( $^{\circ}\text{C}$ ):** Not applicable

**Ignitron temperature:** Not applicable

**Upper explosive limit [% (V/V )]:** 33.4

**Lower explosive limit [% (V/V )]:** 12.7

**Dissolubility:** Dissolvable in water,  $4.4\text{g}/\text{l}$ ( $25^{\circ}\text{C}$ ), dissolved in fat.

**Main application:** Used as refrigerant.

## Part 10 Stability and Reactivity

**Stability:** Stable

**Condition that should be avoided:** Sunshine, heat

**Forbidden mixture:** Strong oxidizer, alkali metal, alkali-earth metal, flammable substance

**Aggregation hazard:** Not exist

**Decomposed product:** Carbon dioxide, hydrogen fluoride. Fluorocarbon acid

## Part 11 Toxicology Information

**Acute toxicity:** LD<sub>50</sub>: not available

LC<sub>50</sub>: 4900 mg/m<sup>3</sup>, 4 hours (inhaled by rats)

**Subacute and chronic toxicity:** not available

**Irritation:** not available.

**Mutation:** not available.

**Mutagenicity:** not clear.

**Other:** not available.

## Part 12 Ecology Information

**Biologic toxicity:** fish: LC<sub>50</sub> = 1507 mg/l/96h (freshwater fish)

Carapace: EC<sub>50</sub> = 652 mg/l/48h (water flea)

Flea: EC<sub>50</sub> = 142 mg/l/96h (green flea)

**Durability and degradability:** No information

**Non-biologic degrade:** No information

**Potential biology accumulation:** no information

**Mobility of soil:** no information

**Other hazardous effect:** no information

## Part 13 Waste Disposal

**Waste property:** Hazardous waste

**Waste disposal method:** Dispose of in incineration, fully incinerate after mixing with dissolved fuel. Remove the hydrogen halide come out of incinerator by acid cleaner.

**Attention:** when incineration, it should be fully incinerated to prevent second pollution.

## Part 14 Transportation information

**UN number:** 3252

UN transportation name: difluoromethane

UN hazard category: 2.1 flammable gas

**Hazard matter number:** not available

**Packing category:** III class package



Transportation marking:

Marine pollutant: none

**Attention:** Fix valve protection caps during the transportation, put steel cylinder flat, the mouth of cylinders toward the same direction, not across; The height should not surpass the protective balustrade of transporting car and firmly secured with triangle wood headlock to prevent rolling. It is forbidden to mix up with food chemical during transportation. In summer, transport at morning or evening, avoid sunshine. Drives by relevant regulation, not park the transportation vehicle at downtown or dense-population area.

## Part 15 Regulation Information

Law of the People's Republic of China on production safety (adopted at the 28th session of the ninth NPC standing committee on June 29, 2002);

Law of the People's Republic of China on the prevention and treatment of occupational diseases (adopted at the 24th meeting 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 (order 591 of the state council, effective from 1 December 2011) provide corresponding provisions on the safety management of the production, storage, use, operation and transportation of hazardous chemicals.

The disposal of waste hazardous chemicals shall be carried out in accordance with the laws, administrative regulations and relevant state regulations concerning environmental protection;

Regulations on the safe use of chemicals in the workplace (department of labor, No. 423 [1996]);

Regulations on Labour protection in workplaces where toxic substances are used (order 352 of the state council);

List of dangerous goods (GB12268-2005);

List of the first batch of hazardous chemicals under major supervision (safety inspector general [2011] No. 95);

Notification on the issuance of safety measures and emergency disposal principles for the first batch of hazardous chemicals under supervision focus, No. 142 [2011] of the general office of work safety;

"Chemical safety technical specifications and project sequence" (GB/ t16483-2008)

## **Part 16 Other Information**

The information contained in this MSDS is prepared according to the expertise we learned, only for the purposes of health, safety and environment concerns. The information would not serve as any kind of guarantee, please provide any necessary training for the personnel that may use, dispose of or operation this product.