# Safety Data Sheet

*According to Regulation (EU) No. 1907/2006 (REACH), Annex II*

**Version:** 1.0/EN
26/12/2022
**Trade name:** R32
26/12/2022

**Revision date:**

**Printing date:**

## Section 1: Identification of the substance/mixture and of the company/undertaking

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### *1.1 Product identifier*

| | |
|---|---|
| **Trade name:** | R32 |
| **Substance name:** | Difluoromethane |
| **REACH Reg. No.:** | 01-2119471312-47-0009 |
| **CAS No.:** | 75-10-5 |
| **EC No.:** | 200-839-4 |

### *1.2 Relevant identified uses of the substance or mixture and uses advised against*

| | |
|---|---|
| **Identified uses:** | Used as refrigerant, an important component of R22's replacement. |
| **Uses advised against:** | No uses advised against. |

### *1.3 Details of the supplier of the SDS*

| | |
|---|---|
| **Manufacturer:** | ZHEJIANG QUHUA FLUOR-CHEMISTRY CO.,LTD. |
| **Address:** | JUHUA,QUZHOU,ZHEJIANG,CHINA 324004 |

FOR MORE INFORMATION CALL: 0086-570-3617838 (Monday-Friday, 9:00am-5:00pm)
IN CASE OF EMERGENCY CALL: (24 Hours/Day, 7 Days/Week)
Medical: 0086-570-3096555
Transportation: 0086-570-3612054

## Section 2: Hazards identification

### *2.1 Classification of the substance or mixture*

**Classification according to Regulation (EC) No 1272/2008[CLP]**

Flammable gases, category 1; H220
Gases under pressure (Liquefied gases); H280

**Classification according to Council Directive 67/548/EEC [DSD]**

**Additional information**

Full text of R-phrase(s) and H-statement(s): see section 16.

### *2.2 Label elements*

**Labelling according to Regulation (EC) No 1272/2008 [CLP]**

**Substance name:** Difluoromethane

**Hazard pictogram(s):**

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:** P410 + P403 Protect from sunlight. Store in a well-ventilated place.

**Supplemental Hazard information (EUH):**

No information available.

### *2.3 Other hazards*

Low acute toxicity. Very high atmospheric concentrations may cause anaesthetic effects and asphyxiation.
Liquid splashes or spray may cause freeze burns to skin and eyes.
Fluorinated greenhouse gases, which has climatic warming potential.

## Section 3: Composition/information on ingredients

### *3.1 Substance information*

| *Substance name* | *Synonyms* | *CAS No.* | *EC No.* | *Molecular formula* | *Classification according to DSD* | *% (w/w)* |
|---|---|---|---|---|---|---|
| Difluoromethane | HFC 32 | 75-10-5 | 200-839-4 | CH2F2 | F+; R12 | 100 |

| *Substance name* | *Synonyms* | *CAS No.* | *EC No.* | *Molecular formula* | *Classification according to CLP* | *% (w/w)* |
|---|---|---|---|---|---|---|
| Difluoromethane | HFC 32 | 75-10-5 | 200-839-4 | CH2F2 | Flam. Gas 1; H220<br>Press. Gas (Liq. gas); H280 | 100 |

Remark: The rest unspecified ingredients are impurities, and they are not hazard.
Full text of R-phrase(s) and H-statement(s): see section 16.

## Section 4: First aid measures

### *4.1 Description of first aid measures*

**General notes:** In all cases of doubt, or when symptoms persist, seek medical attention.

**Following 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.

**Following 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.

**Following eye contact:**

Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 10 minutes. Obtain immediate medical attention.

**Following ingestion:**

Unlikely route of exposure. Do not induce vomiting.

Provided the patient is conscious, wash out mouth with water and give 200-300 ml (half a pint) of water to drink. Obtain immediate medical attention.

**Notes for the doctor:**

Treat symptomatically and supportively.

Treatment may vary with condition of victim and specifics of incident.

### *4.2 Most important symptoms and effects, both acute and delayed*

**Inhalation** Very high atmospheric concentrations may cause anaesthetic effects and asphyxiation. An inhalation study in dogs has shown that HFC 32, unlike analogous substances, does not cause cardiac sensitization at concentrations up to 35% v/v.

**Skin** Contact Liquid splashes or spray may cause freeze burns. Unlikely to be hazardous by skin absorption.

**Eye** Contact Liquid splashes or spray may cause freeze burns.

**Ingestion** Highly unlikely - but should this occur freeze burns will result.

### *4.3 Indication of the immediate medical attention and special treatment needed*

Persons with pre-existing skin, eye, or respiratory disease may be at increased risk from the irritant or allergic properties of this material. Attending physician should treat exposed patients symptomatically.

## Section 5: Fire-fighting measures

### *5.1 Extinguishing media*

**Suitable extinguishing media:**

In case of fire in the surroundings: use appropriate extinguishing media.

**Unsuitable extinguishing media:**

For this substance/mixture no limitations of extinguishing agents are given.

### 5.2 Special hazards arising from the substance or mixture

Substance is combustible. Containers may burst if overheated.
Decomposition products may include the following materials: carbon dioxide, carbon monoxide, halogenated compounds(hydrogen fluoride).

### 5.3 Advice for fire-fighters

Shut off gas supply if this can be done safely. If possible, take container out of dangerous zone.
Cool cylinders with water spray. Self-contained breathing apparatus (SCBA) may be required if cylinders rupture or release under fire conditions.

## Section 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

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.

### 6.2 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.

### 6.3 Methods and material for containment and cleaning up

Allow small spillages to evaporate provided there is adequate ventilation.
Large spillages: Ventilate area. Contain spillages with sand, earth or any suitable adsorbent material. Prevent liquid from entering drains, sewers, basements and work pits since the vapour may create an explosive or suffocating atmosphere.

### 6.4 Reference to other sections

See Section 7 for information on safe handling.
See section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

## Section 7: Handling and storage

### 7.1 Precautions for safe handling

Keep away from sources of ignition - No Smoking.
Take precautionary measures against static discharges.
Avoid inhalation of high concentrations of vapours.
Atmospheric levels should be controlled in compliance with the occupational exposure limit.

Atmospheric concentrations well below the occupational exposure limit can be achieved by good occupational hygiene practice.

The vapour is heavier than air, high concentrations may be produced at low levels where general ventilation is poor, in such cases provide adequate ventilation or wear suitable respiratory protective equipment with positive air supply.

Avoid contact between the liquid and skin and eyes.

### *7.2 Conditions for safe storage, including any incompatibilities*

Keep in a well ventilated place. Keep in a cool place away from fire risk, direct sunlight and all sources of heat such as electric and steam radiators. Avoid storing near to the intake of air conditioning units, boiler units and open drains. Cylinders and Drums: Keep container dry. Storage temperature: < 45°C.

### *7.3 Specific end use(s)*

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## Section 8 : Exposure controls/personal protection

### *8.1 Control parameters*

**Occupational exposure limit values:**

Long Term Exposure Limit (LTEL): 8-hr Time-weighted Average (TWA) 1000 ppm.

### *8.2 Exposure controls*

**Appropriate engineering controls:**

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Personal protective equipment:**

Eye and 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 pressurised 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.

**Environmental exposure controls:**

Do not allow material to be released to the environment without the proper governmental permits.

**Industrial hygiene:**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

## Section 9: Physical and chemical properties

### *9.1 Information on basic physical and chemical properties*

| | |
|---|---|
| **Appearance:** | Compressed liquefied gas. |
| **Colour:** | Clear, colorless |
| **Odour:** | Slight ethereal |
| **pH:** | Not available. |
| **Melting point:** | -136°C |
| **Boiling point:** | -51.7°C |
| **Relative Vapor Density:** | 1.86 at normal boiling pointy (Air= 1) |
| **Liquid Density:** | 1.1 g/cm$^3$ |
| **Vapour pressure:** | 17 bar at 25°C |
| **Partition coefficient (n -octanol/water):** | Log pow = 0.2 |
| **Solubility in water:** | Insoluble in water |
| **Flash point:** | No data available. |
| **Critical Temperature:** | 78.25°C |
| **Critical Pressure:** | 58.1 bar |
| **Flammability:** | Lower: 14.0 %(v/v) Upper:31.0 %(v/v) (determined by ICI using ASTM 681-85) |
| **Decomposition temperature:** | No data available. |
| **Explosive properties:** | No data available. |
| **Oxidising properties:** | Non oxidizer. |
| **Evaporation rate :** | No data available. |
| **Viscosity:** | No data available. |
| **Volatile:** | 100 WT% |

### *9.2 Other information*

No data available.

## Section 10: Stability and reactivity

### *10.1 Reactivity*

The gas mixes well with air, explosive mixtures are formed easily.

### *10.2 Chemical stability*

Stable under normal temperature conditions and recommended use.

### *10.3 Possibility of hazardous reactions*

Can react violently if in contact with alkali metals and alkaline earth metals - sodium, potassium, barium.
May react violently with: oxidising agents.

### *10.4 Conditions to avoid*

Avoid open flames and high temperatures.

### *10.5 Incompatible materials*

Incompatible materials: finely divided metals, magnesium and alloys containing more than 2% magnesium.

### *10.6 Hazardous decomposition products*

Hazardous decomposition products formed under fire conditions: Carbon oxides, hydrogen fluoride.

## Section 11: Toxicological information

### *11.1 Toxicokinetics, metabolism and distribution*

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

### *11.2 Information on toxicological effects*

**Acute toxicity:**

| | |
|---|---|
| Acute Inhalation toxicity: | $LC_{50}$ = 1890 g/m³/4h (rat) (NLM Dataset); |
| | $LC_{50}$ = 1810 g/m³ (mouse) (NLM Dataset); |
| Acute Oral toxicity: | Quantitative data on the acute oral/dermal toxicity of this product are not |
| Acute Dermal toxicity: | available. |

**Skin corrosion/irritation:**

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

**Serious eye damage/irritation:**

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

**Respiratory or skin sensitization:**

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

**CMR effects (Carcinogenicity, Mutagenicity and Toxicity for Reproduction):**

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
The substance or mixture is not classified as mutagens or toxic to reproduction.

**STOT-single exposure and repeated exposure:**

The substance or mixture is not classified as specific target organ toxicant, single exposure, repeated exposure.

**Additional information:**

No data available.

## Section 12: Ecological information

### *12.1 Toxicity*

Quantitative data on the acute fish/daphnia/bacteria toxicity of this product are not available.

### *12.2 Persistence and degradability*

Decomposed comparatively rapidly in the lower atmosphere (troposphere). Atmospheric lifetime is 5.6 year(s). Products of decomposition will be highly dispersed and hence will have a very low concentration. Does not influence photochemical smog (i.e. is not a VOC under the terms of the UNECE agreement).

### *12.3 Bioaccumulative potential*

Log pow = 0.2 The low octanol-water partition coefficient indicated that the product is not likely to bioaccumulate.

### *12.4 Mobility in soil*

To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

### *12.5 Results of PBT and vPvB assessment*

PBT/vPvB assessment information is not available as chemical safety assessment not conducted.

### *12.6 Other adverse effects*

Global warming potential (GWP) = 550. Climatic warming potential.

## Section 13: Disposal considerations

### *13.1 Waste treatment methods*

Best to recover and recycle. If this is not possible, destruction is to be in an approved facility which is equipped to absorb and neutralise acid gases and other toxic processing products.
Product removed from the cylinder must be disposed of in accordance with appropriate Federal, State, local regulation. Return cylinders with residual product to the suppliers. Do not dispose of locally.

## Section 14: Transport information

### *14.1 Land transport (ADR/RID/GGVSE)*

| | |
|---|---|
| **UN-No.:** | 3252 |
| **Official transport designation:** | DIFLUOROMETHANE (REFRIGERANT GAS R 32) |
| **Class:** | 2.1 |
| **Classification Code:** | 2F |
| **Packing group:** | - |
| **Hazard label:** | 2.1 |

### *14.2 Sea transport (IMDG-Code/GGVSee)*

| | |
|---|---|
| **Proper Shipping Name:** | DIFLUOROMETHANE (REFRIGERANT GAS R 32) |
| **Class:** | 2.1 |
| **UN-No.:** | 3252 |
| **Packing group:** | - |
| **EmS No.:** | F-D, S-U |
| **Marine pollutant:** | No |

***14.3 Air transport (ICAO-TI/IATA-DGR)***

| | |
|---|---|
| **Proper Shipping Name:** | DIFLUOROMETHANE (REFRIGERANT GAS R 32) |
| **Class:** | 2.1 |
| **UN-No.:** | 3252 |
| **Packing group:** | - |

***14.4 Additional information***

No data available.

## Section 15: Regulatory information

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

**EU regulation:**

| | |
|---|---|
| ***Authorisations:*** | No information available. |
| ***Restrictions on use:*** | No information available. |
| ***EINECS:*** | This substance is listed in the inventory. |
| ***DSD (67/548/EEC):*** | This substance is not listed in the Annex I. |
| ***Regulation (EC) No 842/2006:*** | This substance is listed in the Annex I of Regulation (EC) No 842/2006 on certain fluorinated greenhouse gases. |

**Other chemical regulation:**

| | |
|---|---|
| ***USA - TSCA:*** | This substance is listed in the inventory. |
| ***Canada - DSL:*** | This substance is listed in the inventory. |
| ***Australia - AICS:*** | This substance is listed in the inventory. |
| ***Korea - ECL:*** | This substance is listed in the inventory. |
| ***Japan - ENCS:*** | This substance is listed in the inventory. |
| ***China - IECSC:*** | This substance is listed in the inventory. |

***15.2 Chemical Safety Assessment***

No Chemical Safety Assessment has been carried out for this substance.

## Section 16: Other information

***16.1 Revision Information:***

Date of the previous revision: Not applicable. Date of this revision: 26/12/2021.

Revision summary: The first new SDS

### *16.2 Abbreviations and acronyms*

| | |
|---|---|
| **CLP:** | EU regulation (EC) No 1272/2008 on classification, labelling and packaging of chemical substances and mixtures. |
| **CAS:** | Chemical Abstracts Service (division of the American Chemical Society). |
| **EINECS:** | European Inventory of Existing Commercial Chemical Substances. |
| **IARC:** | International agency for research on cancer. |
| **RID:** | European Rail Transport. |
| **IMDG:** | International Maritime Code for Dangerous Goods. |
| **IATA:** | International Air Transport Association. |
| **DSD:** | Dangerous Substance Directive (67/548/EEC). |
| **TSCA:** | Toxic Substances Control Act, The American chemical inventory. |
| **DSL:** | Domestic Substances List, The Canadian chemical inventory. |
| **AICS:** | The Australian Inventory of Chemical Substances. |
| **ECL:** | Existing Chemicals List, the Korean chemical inventory. |
| **ENCS:** | Japanese Existing and New Chemical Substances. |
| **IECSC:** | Inventory of existing chemical substances in China. |

### *16.3 Key literature references and sources for data*

ESIS IUCLID Dataset: European chemical Substances Information System.
NLM Dataset: United States National library of medicine.

### *16.4 Relevant R-phrases and H-statements*

***R-phrases* (code and full text):**

R12 Extremely flammable.

**H-statements (code and full text):**

H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

### *16.5 Training advice*

Provide adequate information, instruction and training for operators.

### *16.6 Declare to reader*

The information in this Safety Data Sheet (SDS) was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable. According to REACH Article 31(5), the SDS shall be supplied in an official language of the Member State(s) where the

substance or mixture is placed on the market, unless the recipient Member State(s) concerned provide otherwise. It should also be noted that this SDS is applicable to the countries with English as an official language.

---------- End of the SDS ----------