

Material Safety Data Sheet

(HFC 32)

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HFC 32

1. PRODUCT AND COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number: HFC 32 CAS Number: 75-10-5
Product Name R-32
Chemical Formula CH₂F₂
Chemical Name DIFLUOROMETHANE
Product Use Refrigerant, Propellant

Company Identification

MANUFACTURER/DISTRIBUTOR: Cosutin Industrial CO., Limited
Add: Unit B, 10/F Lee May Building 788-790 Nathan Road, Mongkok, Kowloon, H.K.
Tel.: +852 21395855 Fax: +852 81673777
PHONE NUMBERS Product Information: +86 136 31481545
Transport Emergency: +86 136 31481545
Medical Emergency: +86 136 31481545

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Names: Difluoromethane
Chemical Family: HALOGENATED HYDROCARBON
UN No. 3252
Carcinogenicity
None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

Ingredient Name	CAS No.	Typical Wt. %
R-32	75-10-5	100%

3. HAZARDS IDENTIFICATION

Emergency Overview

Misuse or intentional inhalation abuse may lead to death without warning.

Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Rapid evaporation of the liquid may cause frostbite.

Potential Health Effects

Skin: Contact with liquid or refrigerated gas can cause cold burns and frostbite.

Eyes: Contact with liquid or refrigerated gas can cause cold burns and frostbite.

Inhalation: Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects.

Other symptoms potentially related to misuse or inhalation abuse are:

Anaesthetic effects, Light-headedness, dizziness, confusion, incoordination, drowsiness, or unconsciousness.

Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

4. FIRST AID MEASURES

Eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Consult a physician if necessary.

Skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Take off all contaminated clothing immediately. Consult a physician. Wash contaminated clothing before re-use. Treat for frostbite if necessary by gently warming affected area.

Ingestion: Is not considered a potential route of exposure.

Inhalation: Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest.

Artificial respiration and/or oxygen may be necessary. Consult a physician.

General advice: Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

Notes to physician: Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash point: no data available

Ignition temperature: 648 °C (1,198 °F)

Lower explosion limit: 14 vol%

Upper explosion limit: 31 vol%

Fire and Explosion Hazard: Flammable. Cylinders are equipped with pressure and temperature relief devices, but may still rupture under fire conditions. Suitable extinguishing media: Water spray, water fog, Dry chemical, Alcohol-resistant foam, Carbon dioxide (CO₂).

Firefighting Instructions: Use personal protective equipment. Wear neoprene gloves during cleaning up work after a fire. Exposure to decomposition products may be a hazard to health.

Cool containers / tanks with water spray. If gas exiting container ignites, Stop flow of gas. Do not put out the fire unless leak can be stopped immediately. Self-contained

breathing apparatus (SCBA) is required if containers rupture and contents are released under fire conditions.

6. ACCIDENTAL RELEASE MEASURES

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with cleanup. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel): Evacuate personnel to safe areas. Ventilate the area. Refer to protective measures listed in sections 7 and 8.

Accidental Release Measures: Should not be released into the environment.

If a spill occurs, immediately close valves and remove all ignition sources.

7. HANDLING AND STORAGE

Handling (Personnel): Avoid breathing vapours or mist. Avoid contact with skin, eyes and clothing.

Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8. Lines and equipment should be pre-tested with nitrogen using soapy water to detect leaks.

Handle in accordance with good industrial hygiene and safety practice.

Handling (Physical Aspects) : Vapours are heavier than air and may spread along floors.

Vapours may form explosive mixtures with air. The product should only be used in areas from which all naked lights and other sources of ignition have been excluded.

Electrical equipment should be protected to the appropriate standard. No sparking tools should be used. Take measures to prevent the build up of electrostatic charge. Keep away from heat and sources of ignition. Keep away from open flames, hot surfaces and sources of ignition. When using do not smoke.

Storage : Valve protection caps and valve outlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point.

Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement.

Use a pressure reducing regulator when connecting cylinder to lower pressure (>3000 psig) piping or systems. Never attempt to lift cylinder by its cap. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Cylinders should be stored upright and firmly secured to prevent falling or being knocked over.

Separate full containers from empty containers. Keep at temperature not exceeding 52°C. Do not store near combustible materials. Avoid area where salt or other corrosive materials are present.

Storage temperature: < 52 °C (< 126 °F)

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: Ensure adequate ventilation, especially in confined areas. Ground all equipment and cylinders before use. Use explosion-proof electrical equipment rated

Class I, Group D in Division 1 locations. In Division 2 locations, all spark-producing electrical equipment must be explosion-proof and rated Class I, Group D.

Non-sparking motors need not be explosion-proof.

Personal protective equipment

Respiratory protection: For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Hand protection: Additional protection: Heat insulating gloves, and, Impervious gloves

Eye protection: Wear safety glasses with side shields. Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.

Skin and body protection: Fire protective clothing (NOMEX) with antistatic control should be worn when handling this product.

Wear protective clothing which covers any other exposed areas of the arms, legs, and torso.

Exposure Guidelines**Exposure Limit Values****Difluoromethane**

AEL*: 1,000 ppm 8 & 12 hr. TWA

* AEL is manufacturer's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Form: compressed liquefied gas

Color: colourless

Odor: slight, ether-like

Freezing point: -136 °C (-213 °F) at 1,013 hPa

Boiling point: -51.7 °C (-61.1 °F)

% Volatile: 100 %

Vapour Pressure: 16,896 hPa at 25 °C (77 °F)

Density: 0.961 g/cm³ at 25 °C (77 °F) (as liquid)

Water solubility: 4.4 g/l at 25 °C (77 °F)

Vapour density: 1.8 at 25°C (77°F) and 1013 hPa (Air=1.0)

10. STABILITY AND REACTIVITY

Stability: Stable at normal temperatures and storage conditions.

Conditions to avoid: Avoid open flames and high temperatures.

Incompatibility: Alkali metals Alkaline earth metals, Powdered metals, Powdered metal salts

Hazardous decomposition products: Decomposition products are hazardous., This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrofluoric acid and possibly carbonyl fluoride.

Hazardous reactions: Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Dermal: not applicable

Oral: not applicable

Inhalation 4 h LC50: > 520000 ppm , rat

Inhalation: dog

Not a cardiac sensitizer.

Skin irritation: No skin irritation, Not tested on animals

Not expected to cause skin irritation based on expert review of the properties of the substance.

Eye irritation: No eye irritation, Not tested on animals

Not expected to cause eye irritation based on expert review of the properties of the substance.

Skin sensitization: Not tested on animals

Not expected to cause sensitization based on expert review of the properties of the substance.

There are no reports of human respiratory sensitization.

Repeated dose toxicity: Inhalation

rat

No toxicologically significant effects were found.

Carcinogenicity: Overall weight of evidence indicates that the substance is not carcinogenic.

Mutagenicity: Did not cause genetic damage in animals.

Did not cause genetic damage in cultured mammalian cells.

Did not cause genetic damage in cultured bacterial cells.

Reproductive toxicity: Animal testing showed no reproductive toxicity.

Information given is based on data obtained from similar substances.

Teratogenicity: Animal testing showed no developmental toxicity.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Difluoromethane

96 h LC50: Fish 1,507 mg/l

96 h EC50: Algae 142 mg/l

48 h EC50: Daphnia 652 mg/l

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Can be used after re-conditioning. Reclaim by distillation, incinerate, or remove to permitted waste facility. Comply with applicable Federal, State/Provincial and Local Regulations. May be a RCRA Hazardous waste due to the ignitability characteristic.

Environmental Hazards: Empty pressure vessels should be returned to the supplier.

14. TRANSPORTATION INFORMATION

DOT UN number: 3252
Proper shipping name: Difluoromethane
Class: 2.1

IATA_C Labelling No.: 2.1
UN number: 3252
Proper shipping name: Difluoromethane
Class: 2.1
IMDG Labelling No.: 2.1
UN number : 3252
Proper shipping name: Difluoromethane
Class: 2.1
Labelling No.: 2.1

15. REGULATORY INFORMATION

SARA 313 Regulated Chemical(s): This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

16. OTHER INFORMATION

Before use read safety information.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Significant change from previous version is denoted with a double bar.

Revision Information

Revision Data	01 Aug 2011
Supersedes Revision Dated	02-Aug-2011

Key

NE= Not Established NA= Not Applicable (R) = Registered Trademark

End of MSDS