

Material Safety Data Sheet

(HFC 23)

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HFC 23

1. PRODUCT AND COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number: HFC 23 CAS Number: 75-46-7
Product Name R-23
Chemical Formula CHF₃
Chemical Name Trifluoromethane
Product Use Refrigerant, Fire extinguishing agent

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: Trifluoromethane
Chemical Family: HALOGENATED HYDROCARBON
UN No. 1984
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	75-46-7	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, irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling of fainting, dizziness or weakness.

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: does not flash

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

Lower explosion limit: Method : None per ASTM E681

Upper explosion limit: Method : None per ASTM E681

Fire and Explosion Hazard: The product is not flammable. Hazardous decomposition products
Hydrogen fluoride Not a fire or explosion hazard.

Firefighting Instructions: This material is a fire extinguishing agent

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): Wear self-contained breathing apparatus and protective suit.

Accidental Release Measures: Ventilate area, especially low or enclosed places where heavy vapours might collect. Self-contained breathing apparatus (SCBA) is required if a large release occurs.

7. HANDLING AND STORAGE

Handling (Personnel): CAUTION: High pressure gas and liquid. Avoid contact of liquid with eyes and prolonged skin exposure. Use sufficient ventilation to keep employee exposure below recommended limits. Decomposition will occur when product comes in contact with open flame or electrical heating elements.

Storage : Store in a clean, dry place.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places.

Personal protective equipment

Respiratory protection: Under normal manufacturing conditions, no respiratory protection is required when using this product.

Hand protection: Additional protection: 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.

Protective measures: Self-contained breathing apparatus (SCBA) is required if a large release occurs.

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: Liquefied gas

Color: colourless
Odor: slight, ether-like
Boiling point: -82.0 °C (-115.6 °F)
% Volatile: 100 %
Vapour Pressure: 46,986 hPa at 25 °C (77 °F)
Density: 0.380 g/cm³ at 25 °C (77 °F) (as liquid)
Density : 1.42 g/cm³ at -75 °C (-103 °F) (as liquid)
Water solubility: 1.0 g/l at 25 °C (77 °F) at 1,013 hPa
Vapour density: 2.4 at 25°C (77°F) and 1013 hPa (Air=1.0)

10. STABILITY AND REACTIVITY

Conditions to avoid: Stable at normal temperatures and storage conditions.

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

Hazardous decomposition products: Hazardous decomposition products , Hydrogen fluoride , Carbonyl fluoride, Carbon monoxide

Hazardous reactions: Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Dermal: not applicable

Oral: not applicable

Inhalation 4 h LC50: > 5663000 ppm , rat

Inhalation: dog

Cardiac sensitization.

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.

Reproductive toxicity: Did not show mutagenic or teratogenic effects in animal experiments.

Carcinogenicity: Did not show carcinogenic effects in animal experiments.

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.

Teratogenicity: Animal testing showed no developmental toxicity.

Further information : Cardiac sensitisation threshold limit : > 172414 mg/m³

12. ECOLOGICAL INFORMATION

Additional ecological information : no data available

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Can be used after re-conditioning. Reclaim by distillation, or remove to permitted waste facility. Comply with applicable Federal, State/Provincial and Local Regulations.

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

14. TRANSPORTATION INFORMATION

DOT	UN number: 1984 Proper shipping name: Trifluoromethane Class: 2.2 Labelling No.: 2.2
IATA_C	UN number: 1984 Proper shipping name: Trifluoromethane Class: 2.2 Labelling No.: 2.2
IMDG	UN number : 1984 Proper shipping name: Trifluoromethane Class: 2.2 Labelling No.: 2.2

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

Health: 1

Flammability: 0

Reactivity/Physical hazard: 1

PPE: Personal Protection rating to be supplied by user depending on use conditions.

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

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Key

NE= Not Established

NA= Not Applicable

(R) = Registered Trademark

End of MSDS