

Material Safety Data Sheet

(HFC 245fa)

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HFC 245fa

1. PRODUCT AND COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number: HFC 245 CAS Number: 460-73-1
Product Name HFC-245fa
Chemical Formula $\text{CF}_3\text{CH}_2\text{CHF}_2$
Chemical Name 1,1,1,3,3-Pentafluoropropane
Product Use Refrigerant, blowing 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: 1,1,1,3,3-Pentafluoropropane
Chemical Family: HALOGENATED HYDROCARBON
UN No. 3163

Ingredient Name	CAS No.	Typical Wt. %
1,1,1,3,3-Pentafluoropropane	460-73-1	100%

3. HAZARDS IDENTIFICATION

Emergency Overview

Form: Liquefied gas

Color: colourless

Odor: weak

Hazard Summary: This product is not flammable at ambient temperatures and atmospheric pressure. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Causes asphyxiation in high concentrations. The victim will not realize that he/she is suffocating. Inhalation may cause central nervous system effects. May cause cardiac arrhythmia. May cause drowsiness and dizziness. Do not breathe vapour. Irritating to eyes. Avoid contact with skin, eyes and clothing. At higher temperatures, (>250 C), decomposition products may include hydrofluoric acid (HF) and carbonyl halides. The ACGIH Threshold Limit Values (2007) for Hydrogen Fluoride are TLV-TWA 0.5 ppm and Ceiling Exposure Limit 2 ppm.

Potential Health Effects

INHALATION: May cause cardiac arrhythmia.

Causes asphyxiation in high concentrations. The victim will not realize that he/she is suffocating.

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

Inhalation may cause central nervous system effects.

Skin contact: Immediate effects of overexposure may include: Frostbite, if liquid or escaping vapor contacts the skin. Significant skin permeation, and systemic toxicity, after contact appears unlikely. There are no reports of human sensitization.

Eyes: May irritate eyes.

Ingestion: Unlikely route of exposure.

Effects due to ingestion may include: Gastrointestinal discomfort

Chronic Exposure: None known.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

4. FIRST AID MEASURES

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If symptoms persist, call a physician.

Skin contact: After contact with skin, wash immediately with plenty of water. If symptoms persist, call a physician. Take off all contaminated clothing immediately. Wash contaminated clothing before re-use.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician immediately.

Inhalation: Move to fresh air. If breathing is irregular or stopped, administer artificial respiration. Use oxygen as required, provided a qualified operator is present. Call a physician. Do not give drugs from adrenaline-ephedrine group.

Notes to physician: Because of the possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution and only in situations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash point: No flash point

Ignition temperature: 412 °C (774 °F)

Lower explosion limit: None

Upper explosion limit: None

Suitable extinguishing media: The product is not flammable.

ASHRAE 34

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Specific hazards during fire fighting: This product is not flammable at ambient temperatures and atmospheric pressure.

However, this material can ignite when mixed with air under pressure and exposed to strong ignition sources.

Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Exposure to decomposition products may be a hazard to health. In case of fire hazardous decomposition products may be produced such as:

Hydrogen fluoride

Carbon monoxide

Carbon dioxide (CO₂)

Carbonyl halides

Special protective equipment for fire-fighters: In the event of fire and/or explosion do not breathe fumes.

Wear self-contained breathing apparatus and protective suit.

No unprotected exposed skin areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Immediately evacuate personnel to safe areas.

Keep people away from and upwind of spill/leak.

Remove all sources of ignition.

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

Ensure adequate ventilation.

Environmental precautions: Should not be released into the environment.

Do not flush into surface water or sanitary sewer system.

Prevent further leakage or spillage if safe to do so.

Prevent spreading over a wide area (e.g. by containment or oil barriers).

Methods for cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Handling: Handle with care.

Do not get in eyes, on skin, or on clothing.

Do not use in areas without adequate ventilation.

Perform filling operations only at stations with exhaust ventilation facilities.

Open drum carefully as content may be under pressure.

Do not breathe vapours or spray mist.

Advice on protection against fire and explosion: Can form a combustible mixture with air at pressures above atmospheric pressure.

Keep product and empty container away from heat and sources of ignition.

Storage

Requirements for storage areas and containers: Store away from incompatible substances.

Keep away from direct sunlight.

Keep containers tightly closed in a dry, cool and well-ventilated place.

Ensure adequate ventilation, especially in confined areas.

Keep in original packaging, tightly closed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Protective measures: Ensure that eyewash stations and safety showers are close to the workstation location.

Do not breathe vapours or spray mist.

Avoid contact with skin, eyes and clothing.

Engineering measures: Use with local exhaust ventilation.

Perform filling operations only at stations with exhaust ventilation facilities.

Eye protection: Do not wear contact lenses.

Wear as appropriate: Safety glasses with side-shields If splashes are likely to occur, wear:

Goggles or face shield, giving complete protection to eyes

Hand protection: Impervious butyl rubber gloves Neoprene gloves

Gloves must be inspected prior to use.

Replace when worn.

Skin and body protection: Wear as appropriate:

Solvent-resistant gloves

Solvent-resistant apron and boots

If splashes are likely to occur, wear: Protective suit

Respiratory protection: In case of insufficient ventilation wear suitable respiratory equipment.

Wear a positive-pressure supplied-air respirator.

For rescue and maintenance work in storage tanks use self-contained breathing apparatus.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice.

Avoid contact with skin, eyes and clothing.

Ensure adequate ventilation, especially in confined areas.

Remove and wash contaminated clothing before re-use.

Contaminated work clothing should not be allowed out of the workplace.

Keep working clothes separately.

Wash hands before breaks and immediately after handling the product.

Exposure Guidelines

1,1,1,3,3-Pentafluoropropane: 460-73-1 WEEL TWA 300 ppm 1,644 mg/m³

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Form: Liquefied gas

Color: colourless

Odor: weak

Molecular Weight: 134.03 g/mol

pH: neutral

Melting point/range: -103 °C (-153 °F)

Boiling point/boiling range: 15.3 °C (59.5 °F)

Vapor pressure: 1,227 hPa at 20 °C (68 °F)

Vapor pressure: 3,882 hPa at 54.4 °C (129.9 °F)

Relative vapour density: 4.6 (Air = 1.0)

Density: 1.32 g/cm³ at 20 °C (68 °F)

Water solubility: 0.13 g/l

Partition coefficient n-octanol/water: log Pow: 1.35

The product is more soluble in octanol.

Solubility in other solvents: Medium: Methanol partly soluble

Medium: Diethylether partly soluble

10. STABILITY AND REACTIVITY

Conditions to avoid: Protect from heat/overheating.

Keep away from direct sunlight.

Heat, flames and sparks.

Materials to avoid: Calcium

Magnesium

Aluminium

Zinc

Potassium

Finely divided aluminium

Hazardous decomposition products: In case of fire hazardous decomposition products may be produced such as:

Carbon monoxide

Carbon dioxide (CO₂)

Carbonyl halides

Hydrogen fluoride

Thermal decomposition: >250 °C**Hazardous reactions:** Hazardous polymerisation does not occur.Stable under normal conditions.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity: LD50 rat

no data available

Acute dermal toxicity: LD50 rat

Dose: > 2,000 mg/kg

Acute inhalation toxicity: LC50 rat

Dose: > 200000 ppm

Exposure time: 4 h

Acute inhalation toxicity: LC50 mouse
Dose: > 100000 ppm
Exposure time: 4 h
Repeated dose toxicity: rat
NOEL: 500 ppm
Exposure time: 28 d
Additional advice: May cause cardiac arrhythmia.

12. ECOLOGICAL INFORMATION

Toxicity to fish: LC50

Species: Oncorhynchus mykiss (rainbow trout)
Dose: > 81.8 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50

Species: Daphnia
Dose: > 97.9 mg/l
Exposure time: 48 h

Toxicity to bacteria: LC50

Species: not specified
no data available

Additional ecological information: This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations at 40 CFR Part 82.

This product contains greenhouse gases which may contribute to global warming. Do NOT vent to the atmosphere. To comply with provisions of the U.S. Clean Air Act, any residual must be recovered.

Refer to sections 610 and 612 for list of acceptable and unacceptable uses for this product.

13. DISPOSAL CONSIDERATIONS

Waste Information: Avoid contact of spilled material and runoff with soil and surface waterways.

Consult an environmental professional to determine if local, regional or national regulations would classify spilled or contaminated materials as hazardous waste. Use only approved transporters, recyclers, treatment, storage or disposal facilities. Dispose of according to all federal, state and local applicable regulations.

Other Disposal Considerations: Observe all Federal, State, and Local Environmental regulations.

The information offered here is for the product as shipped. Use and/or alterations to the product such as mixing with other materials may significantly change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORTATION INFORMATION

DOT Not dangerous goods

IATA UN Number: 3163

Description of the goods: LIQUEFIED GAS, N.O.S. (1,1,1,3,3-Pentafluoropropane)

Class: 2.2
 Hazard Label: 2.2
 Packing instruction (cargo aircraft): 200
 Packing instruction (passenger aircraft): 200
 IMDG Substance No.: UN 3163
 Description of the goods: LIQUEFIED GAS, N.O.S. (1,1,1,3,3-Pentafluoropropane)
 Class: 2.2
 Hazard Label: 2.2
 EmS Number: F-C
 Marine pollutant: no

15. REGULATORY INFORMATION

Inventories

EU. EINECS: The formulation contains ELINCS substances.

: 1,1,1,3,3-Pentafluoropropane 460-73-1

US. Toxic Substances

Control Act: On TSCA Inventory

Australia. AICS: On or in compliance with the inventory.

Canada.

Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz.

Part II, Vol. 133): This product contains the following components listed on the Canadian NDSL list. All other components are on the Canadian DSL list.

: 1,1,1,3,3-Pentafluoropropane 460-73-1

Japan. ENCS: On or in compliance with the inventory

Korea. KECI: On or in compliance with the inventory

Philippines. PICCS: Not in compliance with the inventory

: 1,1,1,3,3-Pentafluoropropane 460-73-1

China. IECSC: Not in compliance with the inventory

: 1,1,1,3,3-Pentafluoropropane 460-73-1

New Zealand. Interim Inventory of Chemicals (as published by ERMA New Zealand)

: On or in compliance with the inventory

WHMIS Classification: Not Rated

Global warming potential: 950

Ozone depletion potential (ODP): 0

16. OTHER INFORMATION

	HMIS III	NFPA
Health Hazard:	2	2
Flammability:	1	1
Physical Hazard:	0	
Instability:		0

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.

Revision Information

Revision Data 01 Apr 2007

Supersedes Revision Dated 02-Apr-2007

Key

NE= Not Established

NA= Not Applicable

(R) = Registered Trademark

End of MSDS