

Material Safety Data Sheet

(HFC 143a)

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1. PRODUCT AND COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number: HFC 143a CAS Number: 420-46-2
Product Name HFC 143a
Chemical Formula C₂H₃F₃
Chemical Name 1,1,1-Trifluoroethane
Product Use refrigerant, Chemical intermediate, Laboratory chemicals

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 name of the substance: 1,1,1-Trifluoroethane
General name: HALOGENATED HYDROCARBON
CAS Number: 420-46-2
Einecs Number: 206-996-5

Ingredient Name	CAS No.	Typical Wt. %
1,1,1-Trifluoroethane (HFC 143a)	420-46-2	100%

3. HAZARDS IDENTIFICATION

Emergency Overview

Rapid evaporation of the liquid may cause frostbite. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Extremely flammable.

Potential Health Effects

At flame temperatures, this fluorocarbon can decompose to hydrogen fluoride., Exposure to small amounts may be fatal or cause delayed lung injury.

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.

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

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

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

INHALATION: If inhaled Immediately move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Call a physician.

SKIN CONTACT: Wash off immediately with plenty of water for at least 15 minutes. Treat for frostbite if necessary by gently warming affected area. If skin irritation persists, call a physician.

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

INGESTION: Ingestion is not considered a potential route of exposure.

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

General advice: When symptoms persist or in all cases of doubt seek medical advice.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash Point: -90 °C (-130 °F) closed cup

Ignition temperature: 750 °C (1,382 °F)

Lower explosion limit: 7.7 vol%

Upper explosion limit: 17.4 vol%

Fire and Explosion Hazards: Extremely flammable. Vapors are heavier than air and may travel to source of ignition and flash back. Avoid high temperature and static charges.

Cylinders are equipped with pressure and temperature relief devices, but may still rupture under fire conditions. Explosion is possible.

Suitable extinguishing media : Water spray, Water, Dry chemical, Alcohol-resistant foam, Carbon dioxide (CO₂)

Firefighting Instructions : Use water spray to cool unopened containers. If gas exiting container ignites, Stop flow of gas. Do not put out the fire unless leak can be stopped immediately. Use water spray or fog to protect the fire fighters and to cool container. Self-contained breathing apparatus (SCBA) is required if containers rupture and contents are released under fire conditions.

6. ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

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

Spill Cleanup: If this product is spilled and not recovered, or is recovered as a waste for treatment or disposal, the CERCLA Reportable Quantity is 100 lbs. (release of an Unlisted Hazardous Waste with the Characteristic of Ignitability).

Accidental Release Measures: If a spill occurs, immediately close valves and remove all ignition sources.

Evacuate area. Ventilate area, especially low or enclosed places where heavy vapours might collect. Wear self-contained breathing apparatus (SCBA)

7. HANDLING AND STORAGE

Handling(Personnel) Avoid breathing high concentrations of vapour. Avoid contact with skin and eyes. Use in well ventilated area away from possible ignition sources. Lines and equipment should be pre-tested with nitrogen using soapy water to detect leaks. Use sufficient ventilation to keep employee exposure below recommended limits.

Storage Keep container tightly closed. Keep away from heat, sparks and flames. Keep container in a cool, clean and dry area. Do not heat above 52° C (125° F). Store away from oxygen cylinders or other oxidizing materials. Keep away from sources of ignition - No smoking. Ground all equipment and cylinders before use.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Normal ventilation for standard manufacturing procedures is generally adequate. Use local exhaust when large amounts are released or when exposure or flammable limits in air might be exceeded Mechanical ventilation should be used in low or enclosed places. Ground all equipment and cylinders before use. Use explosion-proof electrical equipment rated Class I, Group C of the National Electrical Code in Division 1 locations. In Division 2 locations, all spark-producing electrical equipment must be explosion-proof and rated Class I, Group C.

Non-sparking motors need not be explosion-proof. Equipment should be clean and dry and purged with nitrogen before being put into service.

Personal Protective Equipment Material: Impervious gloves.

Eye protection: Wear coverall chemical splash goggles.

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.

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

Exposure Guidelines

Exposure Limits R-143a

AEL *: 1000 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

Melting point/range: -111.3 °C (-168.3 °F) at 1,013 hPa

Boiling point/boiling range: -47.2 °C (-53.0 °F) at 1,013 hPa

Vapour Pressure: 23,100 hPa at 50 °C (122 °F)

Vapour density: 2.96 at 20 °C (68 °F)

(Air = 1.0)

10. STABILITY AND REACTIVITY

Chemical Stability

Conditions to Avoid: Stable at normal temperatures and storage conditions. Avoid open flames and high temperatures.

Incompatibility: None reasonably foreseeable.

Decomposition: Hydrogen fluoride, Carbonyl fluoride, Carbon dioxide (CO₂), Carbon monoxide

Hazardous reactions: Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

HFC 143a

Further information: Cardiac sensitisation threshold limit: 1031170 mg/m³

Anaesthetic effects threshold limit: 1718600 mg/m³

Rapid evaporation of the liquid may cause frostbite.

1,1,1-Trifluoroethane

Dermal: not applicable

Oral: not applicable

Inhalation 4 h LC50: > 540000 ppm, rat. Anaesthetic effects

Inhalation 4 h LC50: 591000 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.

Repeated dose toxicity : Inhalation

rat

No toxicologically significant effects were found.

Carcinogenicity: Animal testing did not show any carcinogenic effects.

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.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity

48 hour EC50 - Daphnia 300 mg/L.

96 hour LC50 - Oncorhynchus mykiss (rainbow trout) > 100 mg/l

Environmental Fate

Biodegradability: ca. 3 %

Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Can be used after re-conditioning. 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

Shipping Information

DOT/IMO	UN number: 2035 Proper shipping name: 1,1,1-Trifluoroethane Class: 2.1 Labelling No.: 2.1
IATA_C	UN number: 2035 Proper shipping name: 1,1,1-Trifluoroethane Class: 2.1 Labelling No.: 2.1
IMDG	UN number: 2035 Proper shipping name: 1,1,1-Trifluoroethane 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

Health: 1

Flammability: 4

Reactivity/Physical hazard: 0

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

End of MSDS