Tiba International For Refrigeration
طيبة الدولية للتبريد

R-143a

Safety Data Sheet

R-143a

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: R-143a
OTHER NAME: 1,1,1-trifluoroethane
USE: Refrigerant Gas

Tiba International For Refrigeration

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2. HAZARDS IDENTIFICATION

CLASSIFICATION: **Flammable Gas, Gas under pressure, Compressed Gas**
SIGNAL WORD: **DANGER**
HAZARD STATEMENT(S): **Extremely flammable gas, Contains gas under pressure, may explode if heated**
SYMBOL(S): **Flames, Gas Cylinder**

PRECAUTIONARY STATEMENT(S):

Prevention: Keep away from heat, sparks, open flame, and hot surfaces. No Smoking
Response: Leaking gas fire: Do not extinguish unless leak can be stopped immediately. Eliminate all ignition sources if safe to do so.
Storage: Protect from sunlight, store in a well ventilated place.

EMERGENCY OVERVIEW:
Flammable gas. Liquid under high pressure.

POTENTIAL HEALTH EFFECTS
Effects of Overexposure:

Eye Contact
Eye contact with the rapidly evaporation liquid may cause frostbite.

Skin Contact
Skin contact with the rapidly evaporation liquid may cause frostbite. Frostbite effects are a change in color of the skin to gray or white, followed by blistering.

Inhalation
Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Inhalation of high vapor concentration may cause dizziness, disorientation, incoordination, narcosis, nausea or vomiting, leading to unconsciousness, cardiac irregularities, or death.

Ingestion
Not an expected route of exposure.

3. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT NAME	CAS NUMBER	WEIGHT %
1,1,1-trifluoroethane	420-46-2	100

COMMON NAME and SYNONYMS
R-143a; HCFC-143a

There are no impurities or stabilizers that contribute to the classification of the material identified in Section 2

4. FIRST AID MEASURES

SKIN:
Remove contaminated clothing and flush affected areas with lukewarm water. DO NOT USE HOT WATER. Consult a physician immediately to determine if the cryogenic burn has resulted in blistering of the dermal surface or deep tissue freezing.

EYES:
Flush eyes with copious amounts of water for at least 15 minutes, retracting eyelids often. Seek medical attention.

INHALATION:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. 142b acts as a simple asphyxiant. Do not give epinephrine or similar drugs.

INGESTION:
If conscious, drink three to four 8 ounce glasses of water. Call a physician. If unconscious, immediately take affected person to a hospital. Do not give anything by mouth to an unconscious person.

ADVICE TO PHYSICIAN:
Severe exposure requiring medical attention should not be treated with stimulants or adrenaline, since high concentrations of fluorocarbons may result in a sensitization of the heart to adrenaline, causing it to stop upon sudden physical exertion. Those with a known history of heart disease of heartbeat irregularities should be particularly careful to avoid overexposure.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT:	NA - Gas
AUTOIGNITION TEMPERATURE:	NE
UPPER EXPLOSIVE LIMIT:	16.1%
LOWER EXPLOSIVE LIMIT:	7.1%

EXTINGUISHING MEDIA: Water Spray, Water Fog, Dry Chemical, Carbon Dioxide, "Alcohol" foam.

UNUSUAL FIRE HAZARDS:

May form explosive mixtures with air. Vapors may travel considerable distance to source of ignition and flash back. Emits toxic fumes such as carbon monoxide, carbon dioxide, hydrogen chloride, hydrogen fluoride – under fire conditions.

FIRE FIGHTING INSTRUCTIONS:

Keep container cool 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 condition.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK PROCEDURES:

Evacuate all personnel from affected area. Keep personnel upwind. Shut off all sources or ignition. Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Shut off leak if there is no risk. Ventilate area, especially low places where heavy vapors may collect. CERCLA Reportable Quantity = 5,000 lbs.

7. HANDLING AND STORAGE

NORMAL HANDLING:

Use only in well ventilated areas. Ground all equipment and cylinders before use. Use explosion-proof electrical equipment rated Class 1, group D in Division 1 locations. In Division 2 locations, all spark-producing electrical equipment must be explosion-proof and rated Class 1, Group D. Valve protection caps must remain in place unless container is secured with valve outlet pipe to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve in the discharge line to prevent hazardous back flow into the cylinder. Close valve after each use and when empty. Protect cylinders from physical damage.

STORAGE RECOMMENDATIONS:

Store in a cool, dry, well ventilated area away from heavy traffic and emergency exits. Do not allow cylinder storage area temperatures to exceed 125 deg. F (52C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a first in – first out inventory system to prevent full cylinders from being stored for excessive periods of time.

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 exhaust should be used in low or enclosed places. 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:

SKIN PROTECTION:

Impervious gloves should be worn when handling the liquid.

EYE PROTECTION:
Chemical splash goggles should be worn when handling the liquid.

RESPIRATORY PROTECTION:
Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a large release occurs.

EXPOSURE GUIDELINES

(Exposure Limits)

INGREDIENT NAME	ACGIH TLV	OSHA PEL	OTHER LIMIT
1,1,1-trifluoroethane	None Established	None Established	*1000 ppm TWA (8hr)

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Clear, colorless liquid and vapor
PHYSICAL STATE:	Gas at ambient temperatures
ODOR:	Slight ethereal
SOLUBILITY IN WATER (weight %):	Slight
BOILING POINT:	48°C (-54°F)
VAPOR PRESSURE:	165 psia @ 21 deg. C (70°F)
FLASH POINT:	None
EVAPORATION RATE:	No data available
FLAMMABILITY:	Flammable
LEL/UEL:	7.1% / 16.1%
PARTITION COEFFICIENT n-OCTANOL/WATER:	Log Pow: 1.73
AUTO IGNITION TEMPERATURE:	750˚C / 1382˚F
DECOMPOSITION TEMPERATURE:	No data available
VISCOSITY:	Not applicable
VAPOR DENSITY (air = 1.0):	2.9
% VOLATILESBY VOLUME:	100 WT%
DENSITY	0.93 g/cc at 25˚C (77˚F) – Liquid
pH:	Unknown
MELTING POINT:	-111˚C / -168˚F
SPECIFIC GRAVITY (Water=1):	0.93
MOLECULAR FORMULA:	CF_3CH_3
MOLECULAR WEIGHT:	84.06

10. STABILITY AND REACTIVITY

CHEMICAL STABLILITY:
Material is stable. However, avoid open flames and high temperatures.

REACTIVITY:

INCOMPATIBILITY WITH OTHER MATERIALS:
Incompatible with alkali or alkaline earth metals-powdered Al, Zn, Be, etc.

CONDITIONS TO AVOID:
Heat, sparks, flames, and other ignition sources

11. TOXICOLOGICAL INFORMATION

Rat inhalation LC50 (4 hr.): 2050 gm/m3; 128,000 ppm
Mouse inhalation LC50 (2 hr.): 1750 gm/m3
In screening studies with experimental animals, exposure above 25,000 ppm followed by a large epinephrine challenge has induced serious cardiac irregularities. Preliminary screening tests indicated that 1-Chloro-1,1-difluoroethane may be weakly mutagenic. In vivo cytogenicity and dominant lethal assays for mutagenicity were negative. In a two year rat inhalation study, 1-Chloro-1,1difuoroethane produced no chronic or carcinogenic effects at levels as high as 2% in air.

POTENTIAL HEALTH EFFECTS

Effects of Overexposure:

Eye Contact
Eye contact with the rapidly evaporating liquid may cause frostbite.

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Ingestion
Not an expected route of exposure.

12. ECOLOGICAL INFORMATION

DEGRADABILITY (BOD):
1,1,1-trifluoroethane is a gas at room temperature; therefore, it is unlikely to remain in water.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Reclaim by distillation, incinerate, or remove to a permitted waste facility. Comply with Federal, State, and local regulations.

This material may be a RCRA hazardous waste upon disposal due to the ignitability characteristic.

14. TRANSPORT INFORMATION

US DOT ID NUMBER: UN2035
US DOT PROPER SHIPPING NAME: 1,1,1-Trifluoroethane
US DOT HAZARD CLASS: 2.1
US DOT PACKING GROUP: Not Applicable

15. REGULATORY INFORMATION

U. S. FEDERAL REGULATIONS:

TSCA Inventory Status: Reported/Included.

Title III Hazard classification sections 311,312

Acute:	Yes
Chronic:	No
Fire:	Yes
Reactivity:	No
Pressure:	Yes

Lists:

SARA Extremely Hazardous Substance	-No
CERCLA Hazardous Substance	-(*)
SARA Toxic Chemicals	-No

* See Disposal Information

HFC-143a is a flammable gas as defined by OSHA in 29CFR 1910.1200 (c). Use of this product may require compliance with 29CFR 1910.119, Process Safety Management of Highly Hazardous Chemicals.

CALIFORNIA PROPOSITION 65:

The ingredients in this product do not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.