

Section 1 - Chemical Product and Company Identification

MSDS Name: 1,1,2-Trichloro-1,2,2-trifluoroethane
Catalog Numbers: AC174170000, AC174170010, AC174170025, AC174170200, AC174170250, AC174175000, AC174175000, AC222100025, AC222100250, AC222105000, AC265520000, AC265520010, AC265520010, AC265520025, AC265520500, S71216, T178-4, T1784LC, T178J4, T180-20, T180-4, T180J4
Synonyms: Freon 113; Fluorocarbon 113; 1,1,2-Trichlorotrifluoroethane; CFC-113; Chlorofluorocarbon 113.
Company Identification: Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
For information in the US, call: 201-796-7100
Emergency Number US: 201-796-7100
CHEMTREC Phone Number, US: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#: 76-13-1
Chemical Name: 1,1,2-Trichlorotrifluoroethane
%: 99
EINECS#: 200-936-1

Hazard Symbols: N



Risk Phrases: 59

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Caution! May cause eye irritation. Vapor reduces oxygen available for breathing. May cause central nervous system effects. May cause cardiac disturbances. This is a CFC substance which destroys ozone in the upper atmosphere. Destruction of the ozone layer can lead to increased ultraviolet radiation which, with excess exposure to sunlight, can lead to an increase in skin cancer and eye cataracts.
Target Organs: Heart, central nervous system.

Potential Health Effects

Eye: May cause eye irritation. May cause conjunctivitis.
Skin: May cause mild skin irritation. Prolonged or repeated contact may dry/defat the skin and cause irritation.
Ingestion: Ingestion of large amounts may cause gastrointestinal irritation. Expected to be a low ingestion hazard.
Inhalation: Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. Vapor reduces oxygen available for breathing. May cause heart disturbances, possibly leading to cardiac arrest and death. May cause narcotic effects in high concentration.
Chronic: Prolonged or repeated skin contact may cause defatting and dermatitis.

Section 4 - First Aid Measures

Eyes:	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin:	Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.
Ingestion:	Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid.
Inhalation:	Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation.
Notes to Physician:	Causes cardiac sensitization to endogenous catecholamines which may lead to cardiac arrhythmias. Do NOT use adrenergic agents such as epinephrine or pseudoepinephrine.

Section 5 - Fire Fighting Measures

General Information:	As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Substance is noncombustible.
Extinguishing Media:	Use extinguishing media most appropriate for the surrounding fire.
Autoignition Temperature:	770 deg C (1,418.00 deg F)
Flash Point:	None.
Explosion Limits: Lower:	Explosion Not available
Explosion Limits: Upper:	Explosion Not available
NFPA Rating:	health: 1; flammability: 0; instability: 0;

Section 6 - Accidental Release Measures

General Information:	Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:	Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation. U.S. regulations require reporting spills and releases to soil, water and air in excess of reportable quantities.

Section 7 - Handling and Storage

Handling:	Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Do not vent to the atmosphere. To comply with provisions of the U.S. Clean Air Act, any residual must be recovered.
Storage:	Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep containers tightly closed.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls:	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
------------------------------	---

Exposure Limits +-----+-----+

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
1,1,2-Trichlorotrifluoroethane	1000 ppm; 1250 ppm STEL	1000 ppm TWA; 7600 mg/m3 TWA	1000 ppm TWA; 7600 mg/m3 TWA
		2000 ppm IDLH	

OSHA Vacated PELs: 1,1,2-Trichlorotrifluoroethane: 1000 ppm TWA; 7600 mg/m3 TWA

Personal Protective Equipment

Eyes: Wear chemical splash goggles.

Skin: Wear appropriate gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Color: clear, colorless

Odor: ethereal odor - weak odor - sweetish odor

pH: Not available

Vapor Pressure: 273 mm Hg @ 20 deg C

Vapor Density: 6.5 (air=1)

Evaporation Rate: >1 (ether = 1)

Viscosity: Not available

Boiling Point: 47 - 48 deg C

Freezing/Melting Point: -36 deg C (-32.80°F)

Decomposition Temperature:

Solubility in water: Insoluble

Specific Gravity/Density: 1.47 @ 21°C

Molecular Formula: C2Cl3F3

Molecular Weight: 187.38

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: High temperatures.

Incompatibilities with Other Materials: Strong oxidizing agents, strong acids, strong bases, powdered aluminum.

Hazardous Decomposition Products: Hydrogen chloride, phosgene, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, hydrogen fluoride gas, carbonyl fluoride.

Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#: CAS# 76-13-1: KJ4000000

LD50/LC50: RTECS:

CAS# 76-13-1: Draize test, rabbit, skin: 500 mg/24H Mild;

Inhalation, mouse: LC50 = 260 gm/m3/2H;

Inhalation, mouse: LC50 = 467000 mg/m3/2H;

Inhalation, rabbit: LC50 = 59500 ppm/2H;

Inhalation, rabbit: LC50 = 59.5 ppm/2H;
Inhalation, rat: LC50 = 38500 ppm/4H;
Inhalation, rat: LC50 = 53.3 ppm/4H;
Inhalation, rat: LC50 = 38.5 ppm/4H;
Inhalation, rat: LC50 = 52.5 ppm/4H;
Oral, rat: LD50 = 43 gm/kg;
Oral, rat: LD50 = 43 gm/kg;

Carcinogenicity: 1,1,2-Trichlorotrifluoroethane - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Other: No information available.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT

Shipping Name: Not Regulated

Hazard Class:

UN Number:

Packing Group:

Canada TDG

Shipping Name: Not regulated as a hazardous material

Hazard Class:

UN Number:

Packing Group:

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: N

Risk Phrases:

R 59 Dangerous for the ozone layer.

Safety Phrases:

S 59 Refer to manufacturer/supplier for information on recovery/recycling.

WGK (Water Danger/Protection)

CAS# 76-13-1: 2

Canada

CAS# 76-13-1 is listed on Canada's DSL List

Canadian WHMIS Classifications: Not available

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 76-13-1 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 76-13-1 is listed on the TSCA
Inventory.

Section 16 - Other Information

MSDS Creation Date: 12/12/1997

Revision #9 Date: 6/07/2006

Revisions were made in Sections: 9

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.