

Material Safety Data Sheet

1,1,2-Trichloro-1,2,2-trifluoroethane

ACC# 26370

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, AC222100025, AC222100250, AC222105000, AC265520000, 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
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
76-13-1	1,1,2-Trichlorotrifluoroethane	99	200-936-1

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid.

Caution! Vapor reduces oxygen available for breathing. May cause eye irritation. 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. Instillation of undiluted CFC-113 produced no significant irritation in the rabbit eye.

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. Discomfort due to volatility would be expected.

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. Overexposure may cause dizziness and loss of 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.

Flash Point: None.

Autoignition Temperature: 770 deg C (1,418.00 deg F)

Explosion Limits, Lower:Not available.

Upper: Not available.

NFPA Rating: (estimated) 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 TWA; 1250 ppm STEL	1000 ppm TWA; 7600 mg/m ³ TWA 2000 ppm IDLH	1000 ppm TWA; 7600 mg/m ³ TWA

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

Appearance: 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

Decomposition Temperature: > 250 deg C

Solubility: 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:

CAS# 76-13-1:

Draize test, rabbit, skin: 500 mg/24H Mild;

Inhalation, mouse: LC50 = 260 gm³/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:

CAS# 76-13-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Data from the exposure of human volunteers to CFC-113 indicate that the threshold concentration for impairment of human psychomotor performance, described as loss of ability to concentrate and mild lethargy, is about 2500 ppm. After review of fatality reports, NIOSH concluded that working with high concentrations of CFC-113 or other chlorofluorocarbons in confined spaces has the potential to cause death by cardiac arrhythmia, asphyxiation, or both.

Teratogenicity: No information available.

Reproductive Effects: See actual entry in RTECS for complete information.

Mutagenicity: No information available.

Neurotoxicity: No information available.

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: Has very limited solubility in water and is highly volatile. Expected to be eventually conveyed to the atmosphere. Has some potential to perturb stratospheric ozone.

Physical: No information available.

Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	Not Regulated	Not Regulated
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA

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

Health & Safety Reporting List

CAS# 76-13-1: Effective 4/13/89, Sunset 12/19/95

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 76-13-1: immediate, delayed.

Section 313

This material contains 1,1,2-Trichlorotrifluoroethane (CAS# 76-13-1, 99%), which is subject to the reporting requirements of Section 313 of SARA Title III and

Clean Air Act:

This material does not contain any hazardous air pollutants. CAS# 76-13-1 is listed as a Class 1 ozone depletor with an 0.8 ODP

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 76-13-1 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

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 - DSL/NDSL

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

Canada - WHMIS

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.

Canadian Ingredient Disclosure List

CAS# 76-13-1 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 12/12/1997

Revision #9 Date: 6/07/2006

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 Fisher 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 Fisher has been advised of the possibility of such damages.