

Material Safety Data Sheet



1,1,2-Trichlorotrifluoroethane (Halocarbon 113)

Section 1. Chemical product and company identification

Product Name : 1,1,2-Trichlorotrifluoroethane (Halocarbon 113)
Supplier : AIRGAS INC., on behalf of its subsidiaries
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253
Product use : Synthetic/Analytical chemistry.
MSDS# : 001098
Date of Preparation/Revision : **5/15/2006.**
In case of emergency : 1-866-734-3438

Section 2. Hazards identification

Physical state : Liquid. (COLORLESS TO WATER-WHITE LIQUID WITH AN ODOR LIKE CARBON TETRACHLORIDE (AT HIGH CONCENTRATIONS) [NOTE: A GAS ABOVE 118 F.]
Emergency overview : Warning!
CAUSES DAMAGE TO THE FOLLOWING ORGANS: HEART, CARDIOVASCULAR SYSTEM, SKIN, CENTRAL NERVOUS SYSTEM.
Contact with rapidly expanding gases can cause frostbite.
Routes of entry : Inhalation
Potential acute health effects
Eyes : No known significant effects or critical hazards.
Skin : Irritating to skin.
Inhalation : Practically non-toxic by inhalation.
Ingestion : Ingestion is not a normal route of exposure for gases
Potential chronic health effects : **CARCINOGENIC EFFECTS** A4 (Not classifiable for human or animal.) by ACGIH.
MUTAGENIC EFFECTS Not available.
TERATOGENIC EFFECTS: Not available.
Medical conditions aggravated by overexposure : Acute or chronic respiratory conditions may be aggravated by overexposure to this gas.
See toxicological Information (section 11)

Section 3. Composition, Information on Ingredients

<u>Name</u>	<u>CAS number</u>	<u>% Volume</u>	<u>Exposure limits</u>
1,1,2-Trichlorotrifluoroethane (Halocarbon 113)	76-13-1	100	ACGIH TLV (United States, 1/2005). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens. STEL: 9590 mg/m ³ 15 minute(s). Form: All forms STEL: 1250 ppm 15 minute(s). Form: All forms TWA: 7670 mg/m ³ 8 hour(s). Form: All forms TWA: 1000 ppm 8 hour(s). Form: All forms NIOSH REL (United States, 12/2001). STEL: 9500 mg/m ³ 15 minute(s). Form: All forms STEL: 1250 ppm 15 minute(s). Form: All forms TWA: 7600 mg/m ³ 10 hour(s). Form: All forms TWA: 1000 ppm 10 hour(s). Form: All forms OSHA PEL (United States, 8/1997).

Section 4. First aid measures

No action shall be taken involving any personal risk or without suitable training. If fumes are still suspected to be present, the rescuer should wear an appropriate mask or a self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

- Eye contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.
- Skin contact** : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
- Frostbite** : Try to warm up the frozen tissues and seek medical attention.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.
- Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.

Section 5. Fire fighting measures

- Flammability of the product** : Non-flammable.
- Products of combustion** : These products are carbon oxides (CO, CO₂), halogenated compounds, hydrogen chloride, hydrogen fluoride.
- Fire fighting media and instructions** : Use an extinguishing agent suitable for surrounding fires.

No specific hazard.
- Special protective equipment for fire-fighters** : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

Section 6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (Section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. For small spills add absorbent (soil may be used in the absence of other suitable materials) scoop up material and place in a sealed, liquid-proof container for disposal. For large spills dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

Section 7. Handling and storage

- Handling** : Wash thoroughly after handling.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls, Personal Protection

- Engineering controls** : No special ventilation requirements. Good general ventilation should be sufficient to control airborne levels. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation, or other engineering controls to keep worker exposure below any recommended or statutory limits.
- Personal protection**
 - Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
 - Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

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Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

The applicable standards are (US) 29 CFR 1910.134 and (Canada) Z94.4-93

Hands : Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Consult local authorities for acceptable exposure limits.

Section 9. Physical and chemical properties

Molecular weight	: 187.37 g/mole
Molecular formula	: C2-Cl3-F3
Boiling/condensation point	: 47.78°C (118°F)
Melting/freezing point	: -34.99°C (-31°F)
Critical temperature	: Not available.
Vapor pressure	: Not available.
Vapor density	: Not available.
Specific Volume (ft³/lb)	: 17.5747
Gas Density (lb/ft³)	: 0.0569

Section 10. Stability and reactivity

Stability and reactivity : The product is stable.

Incompatibility with various substances : Highly reactive with metals.

Hazardous decomposition products : These products are halogenated compounds, hydrogen chloride, hydrogen fluoride.

Section 11. Toxicological information

Toxicity data

<u>Ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
1,1,2-Trichlorotrifluoroethane (Halocarbon 113)	LC50	155540 ppm (1 hour(s))	Inhalation	Rat

IDLH : 2000 ppm

Chronic effects on humans : **CARCINOGENIC EFFECTS** A4 (Not classifiable for human or animal.) by ACGIH. Causes damage to the following organs: heart, cardiovascular system, skin, central nervous system (CNS).

Other toxic effects on humans : Not considered to be toxic for humans.

Specific effects

Carcinogenic effects : No known significant effects or critical hazards.

Mutagenic effects : No known significant effects or critical hazards.

Reproduction toxicity : No known significant effects or critical hazards.

Section 12. Ecological information

Products of degradation : These products are carbon oxides (CO, CO₂), halogenated compounds.

Toxicity of the products of biodegradation : The product itself and its products of degradation are not toxic.

Environmental fate : Not available.


Environmental hazards : No known significant effects or critical hazards.

Toxicity to the environment : Not available.

Section 13. Disposal considerations

Product removed from the cylinder must be disposed of in accordance with appropriate Federal, State, local regulation. Return cylinders with residual product to Airgas, Inc. Do not dispose of locally.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,1,2-trichloro-1,2,2-trifluoroethane)	9	Not applicable (gas).		-
TDG Classification	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,1,2-trichloro-1,2,2-trifluoroethane)	9	Not applicable (gas).		Explosive Limit and Limited Quantity Index 5
Mexico Classification	UN3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,1,2-trichloro-1,2,2-trifluoroethane)	9	Not applicable (gas).		-

Section 15. Regulatory information

United States

- U.S. Federal regulations** :
- TSCA 6 final risk management: 1,1,2-trichloro-1,2,2-trifluoroethane
 - TSCA 8(b) inventory: 1,1,2-trichloro-1,2,2-trifluoroethane
 - TSCA 12(b) annual export notification: 1,1,2-trichloro-1,2,2-trifluoroethane
 - SARA 302/304/311/312 extremely hazardous substances: No products were found.
 - SARA 302/304 emergency planning and notification: No products were found.
 - SARA 302/304/311/312 hazardous chemicals: 1,1,2-trichloro-1,2,2-trifluoroethane
 - SARA 311/312 MSDS distribution - chemical inventory - hazard identification: 1,1,2-trichloro-1,2,2-trifluoroethane: Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
 - Clean Water Act (CWA) 307: No products were found.
 - Clean Water Act (CWA) 311: No products were found.
 - Clean air act (CAA) 112 accidental release prevention: No products were found.
 - Clean air act (CAA) 112 regulated flammable substances: No products were found.
 - Clean air act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

	Product name	CAS number	Concentration
Form R - Reporting requirements	: 1,1,2-Trichlorotrifluoroethane (Halocarbon 113)	76-13-1	100
Supplier notification	: 1,1,2-Trichlorotrifluoroethane (Halocarbon 113)	76-13-1	100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

- State regulations** :
- Pennsylvania RTK: 1,1,2-trichloro-1,2,2-trifluoroethane: (environmental hazard, generic environmental hazard)
 - Massachusetts RTK: 1,1,2-trichloro-1,2,2-trifluoroethane
 - New Jersey: 1,1,2-trichloro-1,2,2-trifluoroethane

Canada

1,1,2-Trichlorotrifluoroethane (Halocarbon 113)

WHMIS (Canada)

: Not controlled under WHMIS (Canada).
CEPA DSL: 1,1,2-trichloro-1,2,2-trifluoroethane

Section 16. Other information

United States

Label Requirements

: CAUSES DAMAGE TO THE FOLLOWING ORGANS: HEART, CARDIOVASCULAR SYSTEM, SKIN, CENTRAL NERVOUS SYSTEM.

Canada

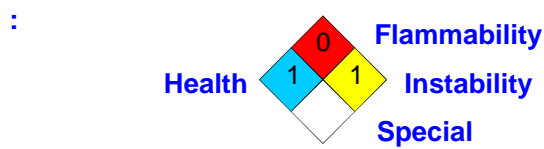
Label Requirements

: Not controlled under WHMIS (Canada).

Hazardous Material Information System (U.S.A.)

Health	*	1
Fire hazard		0
Reactivity		0
Personal protection		C

National Fire Protection Association (U.S.A.)



Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.