

# Material Safety Data Sheet

## Trichloroethylene, stabilized

ACC# 23850

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Trichloroethylene, stabilized**Catalog Numbers:** AC158310000, AC158310010, AC158310025, AC421520000, AC421520040, AC421520200, AC421525000, S80327ACS-1, S80327ACS-2, NC9494591, T340-4, T341-20, T341-4, T341-500, T341J4, T403-4**Synonyms:** Ethylene trichloride; Trichloroethene; 1,1,2-Trichloroethylene; TCE.**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
79-01-6	Trichloroethylene	>99	201-167-4

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: clear, colorless liquid.

**Warning!** Breathing vapors may cause drowsiness and dizziness. Causes eye and skin irritation. Aspiration hazard if swallowed. Can enter lungs and cause damage. May cause cancer based on animal studies. May cause liver damage.**Target Organs:** Central nervous system, liver, eyes, skin.**Potential Health Effects****Eye:** Causes moderate eye irritation. May result in corneal injury. Contact produces irritation, tearing, and burning pain. Contact with trichloroethylene causes pain but no permanent injury to the eyes. (Doc of TLV)**Skin:** Causes mild skin irritation. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. May cause peripheral nervous system function impairment including persistent neuritis, and temporary loss of touch. Damage to the liver and other organs has been observed in workers who have been overexposed.**Ingestion:** May cause irritation of the digestive tract. Aspiration of material into the lungs may

cause chemical pneumonitis, which may be fatal.

**Inhalation:** May cause respiratory tract irritation. May cause liver abnormalities. May cause cardiac abnormalities. May cause peripheral nervous system effects. Inhalation overexposure may lead to central nervous system depression, producing effects such as dizziness, headache, confusion, incoordination, nausea, weakness, and loss of consciousness. Extreme exposures may cause other CNS effects including death. The chief symptoms of TCE exposure were found to be abnormal fatigue, irritability, headache, gastric disturbances, and intolerance to alcohol. (Doc to TLV)

**Chronic:** Possible cancer hazard based on tests with laboratory animals. Chronic inhalation may cause effects similar to those of acute inhalation. Prolonged or repeated skin contact may cause defatting and dermatitis. May cause peripheral nervous system function impairment including persistent neuritis, and temporary loss of touch. Damage to the liver and other organs has been observed in workers who have been overexposed.

## 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 immediately.

**Skin:** Get medical aid if irritation develops or persists. Flush skin with plenty of soap and water.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Possible aspiration hazard. Get medical aid immediately.

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation.

**Notes to Physician:** Treat symptomatically and supportively.

## 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.

**Extinguishing Media:** Use extinguishing media most appropriate for the surrounding fire.

**Flash Point:** None

**Autoignition Temperature:** 420 deg C ( 788.00 deg F)

**Explosion Limits, Lower:**8

**Upper:** 10.5

**NFPA Rating:** (estimated) Health: 2; Flammability: 1; 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. Provide ventilation. Approach spill from upwind. Control runoff and isolate discharged material for proper disposal.

## 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 breathing vapor.

**Storage:** Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

## 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
Trichloroethylene	50 ppm TWA; 100 ppm STEL	1000 ppm IDLH	100 ppm TWA; 200 ppm Ceiling

**OSHA Vacated PELs:** Trichloroethylene: 50 ppm TWA; 270 mg/m<sup>3</sup> TWA

**Personal Protective Equipment**

**Eyes:** Wear chemical splash goggles.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**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:** chloroform-like

**pH:** Not available.

**Vapor Pressure:** 58 mm Hg @ 20 deg C

**Vapor Density:** 4.5 (air=1)

**Evaporation Rate:** 0.69 (CCl<sub>4</sub>=1)

**Viscosity:** 0.0055 poise

**Boiling Point:** 87 deg C

**Freezing/Melting Point:** -86 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Slightly soluble.

**Specific Gravity/Density:** 1.46

**Molecular Formula:** C<sub>2</sub>HCl<sub>3</sub>

**Molecular Weight:** 131.39

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** Light, confined spaces.

**Incompatibilities with Other Materials:** Active metals.

**Hazardous Decomposition Products:** Hydrogen chloride, phosgene, carbon monoxide, carbon dioxide.

**Hazardous Polymerization:** May occur.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 79-01-6: KX4550000

**LD50/LC50:**

CAS# 79-01-6:

Draize test, rabbit, eye: 20 mg/24H Moderate;

Draize test, rabbit, skin: 2 mg/24H Severe;

Inhalation, mouse: LC50 = 8450 ppm/4H;

Inhalation, mouse: LC50 = 220000 mg/m<sup>3</sup>/20M;

Inhalation, mouse: LC50 = 262000 mg/m<sup>3</sup>/30M;

Inhalation, mouse: LC50 = 40000 mg/m<sup>3</sup>/4H;

Inhalation, rat: LC50 = 140700 mg/m<sup>3</sup>/1H;

Oral, mouse: LD50 = 2402 mg/kg;

Oral, mouse: LD50 = 2400 mg/kg;

Oral, rat: LD50 = 4920 mg/kg;

Skin, rabbit: LD50 = >20 gm/kg;

Skin, rabbit: LD50 = 20 mL/kg;

**Carcinogenicity:**

CAS# 79-01-6:

- **ACGIH:** Not listed.
- **California:** carcinogen, initial date 4/1/88
- **NTP:** Suspect carcinogen
- **IARC:** Group 2A carcinogen

**Epidemiology:** In six epidemiological studies completed, there was no evidence to suggest that trichloroethylene has increased the incidence of cancer in humans. (Documentation of the TLV, 7th edition)

**Teratogenicity:** No information available.

**Reproductive Effects:** Experimental reproductive effects have been observed.

**Mutagenicity:** Human mutation data has been reported. IARC and the National Toxicology Program (NTP) stated that variability in the mutagenicity test results with trichloroethylene may be due to the presence of various stabilizers used in TCE which are mutagens (e.g. epoxybutane, epichlorohydrin). See actual entry in RTECS for complete information. R68 Mutagen Category 3 (CHIP 2002, UK).

**Neurotoxicity:** No information available.

**Other Studies:**

**Section 12 - Ecological Information**

**Ecotoxicity:** Fish: Fathead Minnow: 41-67 mg/L; 96 hrs.; LC50Daphnia: Daphnia: 2.2-100 mg/L; 48 hrs.; LC50Mollusk Shrimp: 2 mg/L; 96 hrs.; LC50 Bluegill sunfish, LD50= 44,700 ug/L/96Hr. Fathead minnow, LC50=40.7 mg/L/96Hr.

**Environmental:** In air, substance is photooxidized and is reported to form phosgene, dichloroacetyl chloride, and formyl chloride. In water, it evaporates rapidly. Potential for mobility in soil is high.

**Physical:** No information available.

**Other:** Bioconcentration potential is low (BCF less than 100).

**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:**

CAS# 79-01-6: waste number U228.

**Section 14 - Transport Information**

	<b>US DOT</b>	<b>Canada TDG</b>
<b>Shipping Name:</b>	TRICHLOROETHYLENE	TRICHLOROETHYLENE
<b>Hazard Class:</b>	6.1	6.1
<b>UN Number:</b>	UN1710	UN1710
<b>Packing Group:</b>	III	III

**Section 15 - Regulatory Information**

**US FEDERAL**

**TSCA**

CAS# 79-01-6 is listed on the TSCA inventory.

**Health & Safety Reporting List**

None of the chemicals are on the Health & Safety Reporting List.

**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**

CAS# 79-01-6: 100 lb final RQ; 45.4 kg final RQ

**SARA Section 302 Extremely Hazardous Substances**

None of the chemicals in this product have a TPQ.

**SARA Codes**

CAS # 79-01-6: immediate, delayed, reactive.

**Section 313**

This material contains Trichloroethylene (CAS# 79-01-6, >99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

**Clean Air Act:**

CAS# 79-01-6 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

**Clean Water Act:**

CAS# 79-01-6 is listed as a Hazardous Substance under the CWA. CAS# 79-01-6 is listed as a Priority Pollutant under the Clean Water Act. CAS# 79-01-6 is listed as a Toxic Pollutant under the Clean Water Act.

**OSHA:**

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

**STATE**

CAS# 79-01-6 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

**California Prop 65**

**The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:**

WARNING: This product contains Trichloroethylene, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: CAS# 79-01-6: 50 æg/day NSRL (oral); 80 æg/day NSRL (inhalation)

**European/International Regulations**

**European Labeling in Accordance with EC Directives**

**Hazard Symbols:**

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**Risk Phrases:**

R 36/38 Irritating to eyes and skin.

R 45 May cause cancer.

R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R 67 Vapours may cause drowsiness and dizziness.

**Safety Phrases:**

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 53 Avoid exposure - obtain special instructions before use.

S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

**WGK (Water Danger/Protection)**

CAS# 79-01-6: 3

**Canada - DSL/NDSL**

CAS# 79-01-6 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of D1B, D2B.

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# 79-01-6 is listed on the Canadian Ingredient Disclosure List.

<b>Section 16 - Additional Information</b>
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**MSDS Creation Date:** 2/01/1999

**Revision #7 Date:** 12/27/2006

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