Material Safety Data Sheet
1,2,4-Trichlorobenzene

ACC# 26670

Section 1 - Chemical Product and Company Identification

MSDS Name: 1,2,4-Trichlorobenzene
Catalog Numbers: AC157900000, AC157900010, AC157900025, AC220200000, AC220200100, NC9240452, NC9241454, NC9244218, NC9378461, O4846-4, O4846-4LC, O4846RS19X
Synonyms: unsym-Trichlorobenzene; 1,2,4-TCB; Unsymmetrical trichlorobenzene.
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
120-82-1	1,2,4-Trichlorobenzene	>96	204-428-0

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid.
Warning! Harmful if swallowed. Causes eye, skin, and respiratory tract irritation. Marine pollutant.
Target Organs: Liver, respiratory system, eyes, skin.

Potential Health Effects
Eye: Causes eye irritation.
Skin: Causes skin irritation. Contact with the skin defats the skin. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Repeated (3 times/week for 13 weeks) topical application of 1,2,4-TCB to rabbit ears failed to elicit chloracne or acneform dermatitis, but local dermal irritation was attributed to its defatting action.
Ingestion: Harmful if swallowed.
Inhalation: Causes respiratory tract irritation. May cause liver damage. A study of the acute and subacute inhalation toxicity of trichlorobenzene (95% the 1,2,4-TCB) indicated that the target organs from nonlethal exposures of cats, dogs, rats, rabbits, and guinea pigs included the liver, kidney, and ganglion cells of the brain, and it can irritate mucous membranes.
Chronic: Chronic exposure may cause liver damage.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid.
Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.
Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
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. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.
Flash Point: 105 deg C (221.00 deg F)
Autoignition Temperature: 571 deg C (1,059.80 deg F)
Explosion Limits, Lower:2.5 vol% @ 150°
Upper: 6.6 vol% @ 150°
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. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

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 or mist.
Storage: Store in a cool, dry place. Store in a tightly closed container.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
1,2,4-Trichlorobenzene	5 ppm Ceiling	none listed	none listed

OSHA Vacated PELs: 1,2,4-Trichlorobenzene: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear chemical splash goggles.
Skin: Wear appropriate protective 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: Characteristic aromatic odor
pH: Not applicable.
Vapor Pressure: 0.3 mm Hg @ 20 deg C
Vapor Density: 6.26 (air=1)
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 214 deg C @ 760 mmHg
Freezing/Melting Point:16 deg C
Decomposition Temperature: Not available.
Solubility: insoluble
Specific Gravity/Density:1.46 @ 25°C
Molecular Formula:C6H3Cl3
Molecular Weight:181.45

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Excess heat.
Incompatibilities with Other Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Hydrogen chloride, phosgene, carbon monoxide, carbon dioxide.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 120-82-1: DC2100000
LD50/LC50:
CAS# 120-82-1:
Draize test, rabbit, skin: 1950 mg/13W (Intermittent) Moderate;
Oral, mouse: LD50 = 300 mg/kg;
Oral, mouse: LD50 = 756 mg/kg;
Oral, rat: LD50 = 756 mg/kg;
Oral, rat: LD50 = 756 mg/kg;
Skin, rat: LD50 = 6139 mg/kg;
.

Carcinogenicity:
CAS# 120-82-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Industrial experience on 1,2,4-TCB suggested an odor threshold of about 3 ppm and that minimal eye and throat irritation

could occur at 3-5 ppm. There is the potential for trichlorobenzene-induced hepatic toxicity when exposed to high concentrations.
Teratogenicity: No information available.
Reproductive Effects: orl-rat TDL0: 1800 mg/kg (9-13D preg) ipr-rat TDL0: 750 mg/kg (3D pre)
Mutagenicity: mnt-mus-ipr: 210 mg/kg/24H
Neurotoxicity: No information available.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. Acute fish toxicity: LC50 on Poecilia reticula: approx. 2,4 mg/l. Duration of test: 14 d (Verschueren,K. Handb.of Environm. Data on Org.Chem., 2 ed., 1983); LC50 on Lepomis macrochirus: approx. 3,4 mg/l (Buccafusco,R.J. et al. Bull.Environm.Toxicol.26,446-452,1981).
Environmental: According to WORNE biological degradation with complete ring cleavage occurs within 46 hours at 30C in the presence of Pseudomonas sp. The test was conducted with adapted bacteria (Worne,H.E. Magazine from BECEWA, Liege, Belgium 22, 1972, 61-71).
Physical: No information available.
Other: Marine pollutant.

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:	TRICHLOROBENZENES, LIQUID	TRICHLOROBENZENES, LIQUID
Hazard Class:	6.1	6.1
UN Number:	UN2321	UN2321
Packing Group:	III	III

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 120-82-1 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
CAS# 120-82-1: 40 CFR 799.1053
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# 120-82-1: 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 # 120-82-1: immediate, delayed.
Section 313
This material contains 1,2,4-Trichlorobenzene (CAS# 120-82-1, >96%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR
Clean Air Act:
CAS# 120-82-1 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:
None of the chemicals in this product are listed as Hazardous Substances under the CWA. CAS# 120-82-1 is listed as a Priority Pollutant under the Clean Water Act.
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# 120-82-1 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:
XN N
Risk Phrases:
R 22 Harmful if swallowed.
R 38 Irritating to skin.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:
S 23 Do not inhale gas/fumes/vapour/spray.
S 37/39 Wear suitable gloves and eye/face protection.
S 60 This material and its container must be disposed of as hazardous waste.
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)
CAS# 120-82-1: 3
Canada - DSL/NDSL
CAS# 120-82-1 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# 120-82-1 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 9/08/1998
Revision #7 Date: 6/06/2006