

DATE: 01/29/99 ACCT: 888235001
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**** MATERIAL SAFETY DATA SHEET ****

Chloroform
04770

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Chloroform

Catalog Numbers:

S79960, S79960-1, S79960HPLC-2, S79960SPEC-1, S79960SPEC-2, BPC297RS-115, BPC297RS-200, BPC297RS-28, BPC297RS-50, BPC298RB-115, BPC298RB-19, BPC298RS-200, BPC298RS-50, BPC298RS-115, BPC298RS-200, BPC298RS-28, BPC298RS-50, BPC606RS-115, BPC606RS-200, BPC606RS-28, BPC606RS-50, C297RS115, C297RS200, C297RS28, C297RS50, C297SS115, C297SS200, C297SS28, C297SS50, C298FB115, C298FB19, C298FB200, C298FB50, C298RB115, C298RB19, C298RB200, C298RB50, C298RS115, C298RS200, C298RS28, C298RS50, C298SS-11, C605-1, C605-4, C606RS115, C606RS200, C606RS28, C606RS50, C606SS115, C606SS200, C606SS28, C606SS50, S79960SPEC1

Synonyms:

Methane trichloride, methenyl chloride, R-20 (refrigerant 20), trichloroform, trichloromethane.

Company Identification: Fisher Scientific

1 Reagent Lane

Fairlawn, 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	%	EINECS#
67-66-3	Chloroform	99%	200-663-8

Hazard Symbols: XN
Risk Phrases: 22 38 40 48/20/22

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: clear, colorless.

Warning! May cause central nervous system depression. May cause eye and skin irritation. May cause respiratory and digestive tract irritation. May cause cardiac disturbances. May cause reproductive and fetal effects. May cause cancer based on animal studies.

Target Organs: Kidneys, heart, central nervous system, liver, gastrointestinal system, excretory system.

Potential Health Effects

Eye:

Contact with liquid or vapor causes severe burns and possible irreversible eye damage. Vapors may cause eye irritation.

Skin:

May cause irritation with burning pain, itching and redness.

Ingestion:

May cause central nervous system depression, kidney damage, and liver damage. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause cardiac disturbances. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal.

Inhalation:

Inhalation of high concentrations may cause central nervous system effects characterized by headache, dizziness, unconsciousness and coma. Causes respiratory tract irritation. May cause liver and kidney damage. May cause cardiac sensitization and possible failure.

Chronic:

Overexposure may cause delayed kidney injury. Possible cancer hazard based on tests with laboratory animals. Chronic ingestion may cause liver damage. Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated exposure may cause adverse reproductive effects. May cause fetal effects. Chronic exposure has been associated with an increased incidence of kidney, liver, rectal, bladder, colon, brain, and lymph node cancer. Toxicity may be increased by exposure to alcohol, steroids, and ketones.

**** SECTION 4 - FIRST AID MEASURES ****

Eyes:

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed.

Skin:

Get medical aid. Rinse area with large amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.

Ingestion:

Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Possible aspiration hazard. Get medical aid

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immediately.
 Inhalation:
 Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
 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.
 Antidote:
 No specific antidote exists.

**** 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. Substance is nonflammable.

Extinguishing Media:

Use water spray, dry chemical, or foam. Use extinguishing media most appropriate for the surrounding fire.

Autoignition Temperature: Not available.

Flash Point: Not available.

NFPA Rating: Not published.

Explosion Limits, Lower: Not available.

Upper: Not available.

**** 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., dry sand or earth), then place into a chemical waste container. Avoid runoff into storm sewers and ditches which lead to waterways.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Do not get on skin or in eyes. Avoid ingestion and inhalation.

Storage:

Do not store in direct sunlight. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from acids. Do not store near alkaline substances.

**** SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION ****

Engineering Controls:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Chemical Name	Exposure Limits		
	ACGIH	NIOSH	OSHA - Final PELs
Chloroform	10 ppm ; 49 mg/m3	NIOSH Potential Occupational Carcinogen - see Appendix A 500 ppm IDLH (not considering carcinogenic effects)	C 50 ppm; C 240 mg/m3

OSHA Vacated PELs:

Chloroform:
2 ppm TWA; 9.78 mg/m3 TWA

Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

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 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

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**** SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES ****

Physical State: Liquid
Appearance: clear, colorless
Odor: sweet, fruity odor
pH: Not available.
Vapor Pressure: 160 mm Hg
Vapor Density: 4.12 (Air=1)
Evaporation Rate: 11.6 (Butyl acetate=1)
Viscosity: 0.58cP @ 20C
Boiling Point: 143 deg F
Freezing/Melting Point: -82 deg F
Decomposition Temperature: Not available.
Solubility: Insoluble in water (0.5% at 77F).
Specific Gravity/Density: 1.5 (Water=1)
Molecular Formula: CHCl3
Molecular Weight: 119.366

**** SECTION 10 - STABILITY AND REACTIVITY ****

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.
Conditions to Avoid: High temperatures, incompatible materials, light.
Incompatibilities with Other Materials: Acetone, alkalis, aluminum, disilane, lithium, magnesium, dinitrogen dioxide, nitrogen tetroxide, perchloric acid, phosphorus pentoxide, potassium, potassium hydroxide, methyl alcohol, potassium tert-butoxide, sodium, sodium hydroxide, sodium methylate, sodium-potassium alloy, triisopropylphosphine, calcium hydroxide, fluorine, and any strong oxidizers.
Hazardous Decomposition Products: Hydrogen chloride, carbon dioxide, chlorine, phosgene gas.
Hazardous Polymerization: Has not been reported.

**** SECTION 11 - TOXICOLOGICAL INFORMATION ****

RTECS#: CAS# 67-66-3: FS9100000
LD50/LC50: CAS# 67-66-3: Inhalation, rat: LC50 =47702 mg/m3/4H; Oral, mouse: LD50 = 36 mg/kg; Oral, rat: LD50 = 908 mg/kg; Skin, rabbit: LD50 = 20 gm/kg.
Carcinogenicity: Chloroform - ACGIH: A3 - Animal Carcinogen California: carcinogen - initial date 10/1/87 NIOSH: occupational carcinogen NTP: Suspect carcinogen OSHA: Possible Select carcinogen IARC: Group 2B carcinogen
Epidemiology: No data available.
Teratogenicity: No data available.
Reproductive Effects: No data available.
Neurotoxicity: No data available.
Mutagenicity: No data available.
Other Studies: None.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

Ecotoxicity: Rainbow trout, LC50=2030 ug/L Bluegill, LC50=100,000 ug/L/96H Largemouth bass, LC50=51 ppm/96H
Environmental Fate: If released to land, most evaporates rapidly while some leaches to groundwater. If released to water, substance evaporates rapidly.
Physical/Chemical: Substance photodegrades with T1/2 of 80 days.
Other: None.

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration of Contaminants: CAS# 67-66-3: waste number D022; regulatory level = 6.0 mg/L.
RCRA D-Series Chronic Toxicity Reference Levels: CAS# 67-66-3: chronic toxicity reference level = 0.06 mg/L.
RCRA F-Series: None listed.

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RCRA P-Series: None listed.
RCRA U-Series: CAS# 67-66-3: waste number U044.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: CHLOROFORM
Hazard Class: 6.1
UN Number: UN1888
Packing Group: III
IMO
No information available.
IATA
No information available.
RID/ADR
No information available.
Canadian TDG
Shipping Name: CHLOROFORM
Hazard Class: 6.1(9.2)
UN Number: UN1888

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL

TSCA
CAS# 67-66-3 is listed on the TSCA inventory.
Health & Safety Reporting List
CAS# 67-66-3: Effective Date: June 1, 1987; Sunset Date: June 1, 1997
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.
SARA
Section 302 (RQ)
CAS# 67-66-3: final RQ = 10 pounds (4.54 kg)
Section 302 (TPQ)
CAS# 67-66-3: TPQ = 10,000 pounds; RQ = 10 pounds (does not meet toxicity criteria but because of high production volume and recognized toxicity is considered a chemical of concern)
SARA Codes
CAS # 67-66-3: acute, chronic.
Section 313
This material contains Chloroform (CAS# 67-66-3, 99%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
CAS# 67-66-3 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# 67-66-3 is listed as a Hazardous Substance under the CWA.
CAS# 67-66-3 is listed as a Priority Pollutant under the Clean Water Act.
CAS# 67-66-3 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

Chloroform can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:
WARNING: This product contains Chloroform, a chemical known to the state of California to cause cancer.
California No Significant Risk Level:
CAS# 67-66-3: ingestion: no significant risk level = 20 ug/day; inhalation: no significant risk level = 40 ug/day
European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: XN
Risk Phrases:
R 22 Harmful if swallowed.
R 38 Irritating to skin.
R 40 Possible risks of irreversible effects.
R 48/20/22 Harmful : danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

Safety Phrases:
S 22 Do not inhale dust.
S 36/37 Wear suitable protective clothing and gloves.

WGK (Water Danger/Protection)

CAS# 67-66-3: 3

Canada

CAS# 67-66-3 is listed on Canada's DSL/NDSL List.

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This product has a WHMIS classification of D1A, D2A.
CAS# 67-66-3 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 67-66-3: OEL-ARAB Republic of Egypt:TWA 10 ppm (50 mg/m3). OEL-AUSTRALIA:TWA 10 ppm (50 mg/m3);Carcinogen. OEL-AUSTRIA:TWA 10 ppm (50 mg/m3). OEL-BELGIUM:TWA 10 ppm (49 mg/m3);Carcinogen JAN9. OEL-CZECH SLOVAKIA:TWA 10 mg/m3;STEL 20 mg/m3. OEL-DENMARK:TWA 2 ppm (10 mg/m3); Carcinogen. OEL-FINLAND:TWA 10 ppm (50 mg/m3);STEL 20 ppm;Skin;CAR. OEL-FRANCE:TWA 5 ppm (25 mg/m3);STEL 50 ppm (250 mg/m3);CAR. OEL-GERMANY :TWA 10 ppm (50 mg/m3);Carcinogen JAN9. OEL-HUNGARY:STEL 10 mg/m3. OEL-INDIA:TWA 10 ppm (50 mg/m3);Carcinogen. OEL-JAPAN:TWA 50 ppm (240 mg/m3);Carcinogen. OEL-THE NETHERLANDS:TWA 10 ppm (50 mg/m3). OEL-THE PHILIPPINES:TWA 50 ppm (240 mg/m3). OEL-POLAND:TWA 50 mg/m3. OEL-RUSSIA:TWA 50 ppm. OEL-SWEDEN:TWA 2 ppm (10 mg/m3);STEL 5 ppm (25 mg/m3);CAR. OEL-SWITZERLAND:TWA 10 ppm (50 mg/m3);STEL 20 ppm (100 mg/m3). OEL-THAILAND:TWA 50 ppm (240 mg/m3). OEL-TURKEY:TWA 50 ppm (240 mg/m3). OEL-UNITED KINGDOM:TWA 10 ppm (50 mg/m3);STEL 50 ppm (225 mg/m3). OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV. OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 12/16/1994 Revision #12 Date: 4/28/1998

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 way 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.