

# Material Safety Data Sheet

## Chloroform, preserved with 0.75% Ethanol

ACC# 95979

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Chloroform, preserved with 0.75% Ethanol

**Catalog Numbers:** AC158210000, AC158210010, AC158210025, AC158210050, AC158210100, AC158210250, AC232090000, AC232090010, AC232090025, AC232090250, AC326822500, AC404630000, AC404635000, AC423550000, AC423550040, AC423550250, AC423555000, AC610030040, S79960, S799601, S79960HPLC1, S79960SPEC1, S79960SPEC2, S79969ACS1, S79969ACS2, S93175, S93403, BP1145-1, BP2606-100, C294-1, C294-4, C295-20, C295-4, C295S-4, C298-1, C298-20, C298-200, C298-4, C298-500, C29820LC, C298FB115, C298FB19, C298FB200, C298FB50, C298J1, C298POP19, C298POP200, C298POP50, C298POPB19, C298POPB200, C298POPB50, C298RB115, C298RB200, C298RS115, C298RS19, C298RS200, C298RS28, C298RS50, C298S-4, C298SK-4, C298SS19, C574-1, C574-4, C574SK-4, C606-1, C606-4, C606POP19, C606POP200, C606POP50, C606RS115, C606RS28, C606SK-1, C606SK-4, C606SS115, C606SS19, C606SS200, C606SS28, C606SS50, NC9002591, NC9229128, NC9543674, XXC6060200LI-0

**Synonyms:** Formyl trichloride; Methane trichloride; Methenyl trichloride; Methyl trichloride; Trichloroform; Trichloromethane.

**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
67-66-3	Chloroform	99+	200-663-8
64-17-5	Ethyl alcohol	0.75	200-578-6

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: clear, colorless liquid.

**Warning!** Causes respiratory tract irritation. Causes eye and skin irritation. May be harmful if swallowed. May cause central nervous system depression. May cause cancer based on animal studies. May cause cardiac disturbances. This substance has caused adverse reproductive and fetal effects in animals. Light sensitive.

**Target Organs:** Kidneys, heart, central nervous system, liver, eyes, reproductive system, skin.

#### Potential Health Effects

**Eye:** Causes moderate eye irritation. Contact with liquid causes immediate burning pain, tearing, and reddening of the conjunctiva.

**Skin:** Causes mild skin irritation. May be absorbed through the skin in harmful amounts. May cause severe skin irritation with possible burns, especially if skin is wet or moist. Absorption of liquid through intact skin is possible and may cause systemic poisoning if contact with liquid is prolonged.

**Ingestion:** Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver damage. May cause cardiac disturbances. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. Possible aspiration hazard. May be harmful if swallowed. May cause hallucinations and distorted perceptions.

**Inhalation:** Inhalation of high concentrations may cause central nervous system effects characterized by nausea, headache, dizziness, unconsciousness and coma. May cause cardiac sensitization and possible failure. Inhalation of large amounts may cause respiratory stimulation, followed by respiratory depression, convulsions and possible death due to respiratory paralysis. May be absorbed through the lungs. Causes irritation of the mucous membrane and upper respiratory tract.

**Chronic:** Possible cancer hazard based on tests with laboratory animals. Prolonged or repeated skin contact may cause defatting and dermatitis. May cause reproductive and fetal effects. Effects may be delayed. Laboratory experiments have resulted in mutagenic effects. Toxicity may be increased by exposure to alcohol, steroids, and ketones. Prolonged exposure may cause liver, kidney, and heart damage.

### 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:** Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. 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 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.

**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. Persons with liver, kidney, or central nervous system diseases may be at increased risk from exposure to this product. Alcoholic beverage consumption may enhance the toxic effects of this substance. Effects may be delayed.

## 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. Containers may explode when heated. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Non-combustible, substance itself does not burn but may decompose upon heating to produce irritating, corrosive and/or toxic fumes. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Not combustible, but if involved in a fire, decomposes to produce hydrogen chloride.

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

**Flash Point:** Not available.

**Autoignition Temperature:** Not available.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 2; 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. Approach spill from upwind.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Avoid contact with eyes, skin, and clothing. Do not breathe dust, vapor, mist, or gas. Do not ingest or inhale. Store protected from light.

**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. Separate from strong mineral acids.

## 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
Chloroform	10 ppm TWA	500 ppm IDLH	50 ppm Ceiling; 240 mg/m <sup>3</sup> Ceiling
Ethyl alcohol	1000 ppm TWA	1000 ppm TWA; 1900 mg/m <sup>3</sup> TWA 3300 ppm IDLH	1000 ppm TWA; 1900 mg/m <sup>3</sup> TWA

**OSHA Vacated PELs:** Chloroform: 2 ppm TWA; 9.78 mg/m<sup>3</sup> TWA Ethyl alcohol: 1000 ppm TWA; 1900 mg/m<sup>3</sup> 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:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance:** clear, colorless

**Odor:** sweet, fruity odor - ethereal odor

**pH:** Not available.

**Vapor Pressure:** 160 mm Hg @ 20 deg C

**Vapor Density:** 4.12 (Air=1)

**Evaporation Rate:** 11.6 (Butyl acetate=1)

**Viscosity:** 0.58 cps @ 20 deg C

**Boiling Point:** 60.5-61.5 deg C

**Freezing/Melting Point:** -63 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Slightly soluble.

**Specific Gravity/Density:** 1.492 (Water=1)

**Molecular Formula:** CHCl<sub>3</sub>

**Molecular Weight:** 119.366

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions. Light sensitive.

Hygroscopic: absorbs moisture or water from the air.

**Conditions to Avoid:** High temperatures, incompatible materials, light.

**Incompatibilities with Other Materials:** Alkali metals, fluorine, caustics (e.g. ammonia, ammonium hydroxide, calcium hydroxide, potassium hydroxide, sodium hydroxide), dinitrogen tetroxide, sodium hydroxide + methanol, potassium tert-butoxide, chemically active metals, powdered aluminum, nitrogen tetroxide, powdered magnesium, acetone + alkali, disilane, perchloric acid + phosphorus pentoxide, sodium methylate, triisopropylphosphine.

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

**Hazardous Polymerization:** Will not occur.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 67-66-3: FS9100000

**CAS#** 64-17-5: KQ6300000

**LD50/LC50:**

CAS# 67-66-3:

Draize test, rabbit, eye: 148 mg;  
Draize test, rabbit, eye: 20 mg/24H Moderate;  
Draize test, rabbit, skin: 500 mg/24H Mild;  
Inhalation, mouse: LC50 = 17200 mg/m<sup>3</sup>/2H;  
Inhalation, mouse: LC50 = 6000 mg/m<sup>3</sup>/6H;  
Inhalation, rat: LC50 = 47702 mg/m<sup>3</sup>/4H;  
Inhalation, rat: LC50 = 6000 mg/m<sup>3</sup>/6H;  
Oral, mouse: LD50 = 36 mg/kg;  
Oral, rat: LD50 = 695 mg/kg;  
Oral, rat: LD50 = 1250 mg/kg;  
Skin, rabbit: LD50 = >20 gm/kg;

CAS# 64-17-5:

Draize test, rabbit, eye: 500 mg Severe;  
Draize test, rabbit, eye: 500 mg/24H Mild;  
Draize test, rabbit, skin: 20 mg/24H Moderate;  
Inhalation, mouse: LC50 = 39 gm/m<sup>3</sup>/4H;  
Inhalation, rat: LC50 = 20000 ppm/10H;  
Oral, mouse: LD50 = 3450 mg/kg;  
Oral, rabbit: LD50 = 6300 mg/kg;  
Oral, rat: LD50 = 7060 mg/kg;  
Oral, rat: LD50 = 9000 mg/kg;

**Carcinogenicity:**

CAS# 67-66-3:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 10/1/87
- **NTP:** Suspect carcinogen
- **IARC:** Group 2B carcinogen

CAS# 64-17-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** Oral, rat: TDLo = 13832 mg/kg/2Y-C (Tumorigenic - Carcinogenic by RTECS criteria - Blood - leukemia).; Oral, mouse: TDLo = 127 gm/kg/92W-I (Tumorigenic - Carcinogenic by RTECS criteria - Liver - tumors).; Oral, rat: TD = 98 gm/kg/78W-I (Tumorigenic - neoplastic by RTECS criteria - Kidney, Ureter, Bladder - Kidney tumors and Endocrine - thyroid tumors).; Oral, mouse: TD = 18 gm/kg/17W-I (Tumorigenic - neoplastic by RTECS criteria - Liver - tumors).;

**Teratogenicity:** Oral, rat: TDLo = 1260 mg/kg (female 6-15 day(s) after conception) Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus) Specific Developmental Abnormalities - musculoskeletal system.; Inhalation, rat: TCLo = 100 ppm/7H (female 6-15 day(s) after conception) Specific Developmental Abnormalities - gastrointestinal system and homeostasis.; Inhalation, mouse: TCLo = 100 ppm/7H (female 8-15 day(s) after conception) Specific Developmental Abnormalities - craniofacial (including nose and tongue).

**Reproductive Effects:** Inhalation, rat: TCLo = 30 ppm/7H (female 6-15 day(s) after conception) Fertility - other measures of fertility.; Inhalation, rat: TCLo = 300 ppm/7H (female 6-15 day(s) after conception) Fertility - female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated) and post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).

**Mutagenicity:** DNA Inhibition: Human, HeLa cell = 19 mmol/L.; Sister Chromatid Exchange: Human, Lymphocyte = 10 mmol/L.; Micronucleus Test: Oral, rat = 4 mmol/kg.; Unscheduled DNA Synthesis: Oral, rat = 1 gm/kg.; Sister Chromatid Exchange: Hamster, Embryo = 100 umol/L.

**Neurotoxicity:** No information found

**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** Fish: Channel catfish: LC50 = 75 ppm; 96 Hr; Unspecified Fish: Rainbow trout: LC50 = 43.8 mg/L; 96 Hr; Static bioassay Fish: Fathead Minnow: LC50 = 129.0 mg/L; 96 Hr; Static bioassay (pH = 7.6-8.3) Fish: Bluegill/Sunfish: LC50 = 100.0 mg/L; 96 Hr; Static bioassay Water flea Daphnia: EC50 = 28.9 mg/L; 48 Hr; Static bioassay The majority of the environmental releases from industrial uses are to the atmosphere; releases to water and land will be primarily lost by evaporation and will end up in the atmosphere. Release to the atmosphere may be transported long distances and will photodegrade with a half-life of a few months. Spills and other releases on land will also leach into the groundwater where it will reside for long periods of time.

**Environmental:** Chloroform will not be expected to bioconcentrate into the food chain but contamination of food is likely due to its use as an extractant and its presence in drinking water.

**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:**

CAS# 67-66-3: waste number U044.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	CHLOROFORM	CHLOROFORM
<b>Hazard Class:</b>	6.1	6.1
<b>UN Number:</b>	UN1888	UN1888
<b>Packing Group:</b>	III	III

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 67-66-3 is listed on the TSCA inventory.

CAS# 64-17-5 is listed on the TSCA inventory.

#### Health & Safety Reporting List

CAS# 67-66-3: Effective 6/1/87, Sunset 6/1/97

#### 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# 67-66-3: 10 lb final RQ; 4.54 kg final RQ

#### SARA Section 302 Extremely Hazardous Substances

CAS# 67-66-3: 10000 lb TPQ

#### SARA Codes

CAS # 67-66-3: immediate, delayed.

CAS # 64-17-5: immediate, delayed, fire.

#### 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

CAS# 67-66-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 64-17-5 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 Chloroform, a chemical known to the state of California to cause cancer. WARNING: This product contains Ethyl alcohol, a chemical known to the state of California to cause developmental reproductive toxicity. California No Significant Risk Level: CAS# 67-66-3: 20  $\mu$ g/day NSRL (oral); 40  $\mu$ g/day NSRL (inhalation)

### 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 Limited evidence of a carcinogenic effect.

R 48/20/22 Harmful : danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

##### Safety Phrases:

S 36/37 Wear suitable protective clothing and gloves.

**WGK (Water Danger/Protection)**

CAS# 67-66-3: 3

CAS# 64-17-5: 0

**Canada - DSL/NDSL**

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

CAS# 64-17-5 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of D2A, D2B, D1B.

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# 67-66-3 is listed on the Canadian Ingredient Disclosure List.

CAS# 64-17-5 is listed on the Canadian Ingredient Disclosure List.

**Section 16 - Additional Information**

**MSDS Creation Date:** 6/09/1999

**Revision #8 Date:** 4/13/2004

*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.*