



## Material Safety Data Sheet

Creation Date 20-Jan-2010

Revision Date 20-Jan-2010

Revision Number 1

### 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Product Name</b>	Chloroform, stabilized with ethanol
<b>Cat No.</b>	BP1145-1; C294-1; C294-4; C295-4; C295-20; C295S-4; C298-1; C298-1LC; C298-4; C298-20; C298-200; C298-200LC; C298-500; C298FB-19; C298FB-50; C298FB-115; C298FB-200; C298RB-115; C298RB-200; C298RS-19; C298RS-28; C298RS-50; C298RS-200; C298S-4; C298SK-4; C298SS-50; C298SS-115; C298SS-200; C574-1; C574-4; C574SK-4; C606-1; C606-4; C606RS-28; C606RS-115; C606SK-1; C606SK-4; C606SS-28; C606SS-50; C606SS-115; C606SS-200
<b>Synonyms</b>	Trichloromethane, preserved with Ethanol (Molecular Biology/Technical/Certified ACS/Spectranalyzed/HPLC)
<b>Recommended Use</b>	Laboratory chemicals
<b>Company</b> Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410 Tel: (201) 796-7100	<b>Emergency Telephone Number</b> CHEMTREC®, Inside the USA: 800-424-9300 CHEMTREC®, Outside the USA: 703-527-3887

### 2. HAZARDS IDENTIFICATION

#### WARNING!

#### Emergency Overview

Possible cancer hazard. May cause cancer based on animal data. Harmful if swallowed. Irritating to eyes and skin. May cause central nervous system effects. Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful if inhaled. May cause irritation of respiratory tract. Danger of serious damage to health by prolonged exposure.

**Appearance** Colorless

**Physical State** Liquid

**odor** aromatic

**Target Organs**

Skin, Eyes, Central nervous system (CNS), Liver, Kidney, Blood

#### Potential Health Effects

#### Acute Effects

#### Principle Routes of Exposure

**Eyes**

Irritating to eyes.

**Skin** Irritating to skin. May be harmful in contact with skin.  
**Inhalation** May be harmful if inhaled. May cause irritation of respiratory tract. Inhalation may cause central nervous system effects.  
**Ingestion** Harmful if swallowed. Aspiration hazard. May cause central nervous system effects. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.  
**Chronic Effects** Possible cancer hazard based on tests with laboratory animals. Tumorigenic effects have been reported in experimental animals.. May cause adverse liver effects. May cause adverse kidney effects.

See Section 11 for additional Toxicological information.

**Aggravated Medical Conditions** Central nervous system disorders. Cardiovascular. Preexisting eye disorders. Kidney disorders. Liver disorders. Skin disorders.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Haz/Non-haz**

Component	CAS-No	Weight %
Chloroform	67-66-3	99
Ethyl alcohol	64-17-5	1

### 4. FIRST AID MEASURES

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

**Inhalation** Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention.

**Ingestion** Do not induce vomiting. Call a physician or Poison Control Center immediately.

**Notes to Physician** Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Flash Point** No information available.  
**Method** No information available.

**Autoignition Temperature** No information available.

**Explosion Limits**

**Upper** No data available  
**Lower** No data available

**Suitable Extinguishing Media** Substance is nonflammable; use agent most appropriate to extinguish surrounding fire..

**Unsuitable Extinguishing Media** No information available.

**Hazardous Combustion Products** Phosgene, Chlorine.

**Sensitivity to mechanical impact**  
**Sensitivity to static discharge**

No information available.  
 No information available.

**Specific Hazards Arising from the Chemical**

Thermal decomposition can lead to release of irritating gases and vapors.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

**NFPA**                      **Health 2**                      **Flammability 0**                      **Instability 0**                      **Physical hazards N/A**

**6. ACCIDENTAL RELEASE MEASURES**

**Personal Precautions**                      Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

**Environmental Precautions**                      Should not be released into the environment.

**Methods for Containment and Clean Up**                      Soak up with inert absorbent material. Keep in suitable and closed containers for disposal.

**7. HANDLING AND STORAGE**

**Handling**                      Use only under a chemical fume hood. Wear personal protective equipment. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing.

**Storage**                      Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from light.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Engineering Measures**                      Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

**Exposure Guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Chloroform	TWA: 10 ppm	(Vacated) TWA: 2 ppm (Vacated) TWA: 9.78 mg/m <sup>3</sup> Ceiling: 50 ppm Ceiling: 240 mg/m <sup>3</sup>	IDLH: 500 ppm STEL: 9.78 mg/m <sup>3</sup> STEL: 2 ppm
Ethyl alcohol	TWA: 1000 ppm	(Vacated) TWA: 1900 mg/m <sup>3</sup> (Vacated) TWA: 1000 ppm TWA: 1900 mg/m <sup>3</sup> TWA: 1000 ppm	IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m <sup>3</sup>

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Chloroform	TWA: 5 ppm TWA: 24.4 mg/m <sup>3</sup>	TWA: 10 ppm TWA: 50 mg/m <sup>3</sup> STEL: 225 mg/m <sup>3</sup> STEL: 50 ppm	TWA: 49 mg/m <sup>3</sup> TWA: 10 ppm

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Ethyl alcohol	TWA: 1000 ppm TWA: 1880 mg/m <sup>3</sup>	TWA: 1000 ppm TWA: 1900 mg/m <sup>3</sup>	TWA: 1000 ppm TWA: 1900 mg/m <sup>3</sup>

**NIOSH IDLH:** Immediately Dangerous to Life or Health

**Personal Protective Equipment**

**Eye/face Protection**

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 and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection**

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.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical State</b>	Liquid
<b>Appearance</b>	Colorless
<b>odor</b>	aromatic
<b>Odor Threshold</b>	No information available.
<b>pH</b>	No information available.
<b>Vapor Pressure</b>	213 mbar @ 20 °C
<b>Vapor Density</b>	4.12 (Air = 1.0)
<b>Viscosity</b>	0.56 mPa.s at 20 °C
<b>Boiling Point/Range</b>	60.5 - 61.5°C / 140.9 - 142.7°F
<b>Melting Point/Range</b>	-63°C / -81.4°F
<b>Decomposition temperature °C</b>	290°C
<b>Flash Point</b>	No information available.
<b>Evaporation Rate</b>	11.6 (Butyl Acetate = 1.0)
<b>Specific Gravity</b>	1.480
<b>Solubility</b>	Slightly soluble in water
<b>log Pow</b>	No data available
<b>Molecular Weight</b>	119.38
<b>Molecular Formula</b>	C H Cl <sub>3</sub>

**10. STABILITY AND REACTIVITY**

<b>Stability</b>	Light sensitive.
<b>Conditions to Avoid</b>	Incompatible products. Exposure to light. Excess heat.
<b>Incompatible Materials</b>	Strong oxidizing agents, Strong bases, Powdered metals
<b>Hazardous Decomposition Products</b>	Phosgene, Hydrogen chloride gas, Chlorine
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions .</b>	None under normal processing..

**11. TOXICOLOGICAL INFORMATION**

**Acute Toxicity**

**Component Information**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Chloroform	695 mg/kg ( Rat )	3980 mg/kg ( Rabbit )	47702 mg/kg ( Rat ) 4 h
Ethyl alcohol	7060 mg/kg ( Rat )	Not listed	Not listed

**Irritation** Irritating to eyes and skin

**Toxicologically Synergistic Products** No information available.

**Chronic Toxicity**

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA	Mexico
Chloroform	A3	Group 2B	Reasonably Anticipated	X	Not listed
Ethyl alcohol	Not listed	Group 1	Not listed	X	Not listed

**ACGIH: (American Conference of Governmental Industrial Hygienists)**

- A1 - Known Human Carcinogen
- A2 - Suspected Human Carcinogen
- A3 - Animal Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

**IARC: (International Agency for Research on Cancer)**

- IARC: (International Agency for Research on Cancer)
- Group 1 - Carcinogenic to Humans
- Group 2A - Probably Carcinogenic to Humans
- Group 2B - Possibly Carcinogenic to Humans

**NTP: (National Toxicity Program)**

- NTP: (National Toxicity Program)
- Known - Known Carcinogen
- Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

**Mexico - Occupational Exposure Limits - Carcinogens**

- Mexico - Occupational Exposure Limits - Carcinogens
- A1 - Confirmed Human Carcinogen
- A2 - Suspected Human Carcinogen
- A3 - Confirmed Animal Carcinogen
- A4 - Not Classifiable as a Human Carcinogen
- A5 - Not Suspected as a Human Carcinogen

**Sensitization** No information available.

**Mutagenic Effects** Mutagenic effects have occurred in experimental animals.

**Reproductive Effects** Experiments have shown reproductive toxicity effects on laboratory animals.

**Developmental Effects** Developmental effects have occurred in experimental animals.

**Teratogenicity** Teratogenic effects have occurred in experimental animals..

**Other Adverse Effects** Tumorigenic effects have been reported in experimental animals.. See actual entry in RTECS for complete information.

**Endocrine Disruptor Information** No information available

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Chloroform	EC50 = 560 mg/L/48h	Not listed	Photobacterium phosphoreum: EC50 = 520 mg/L/5 min Photobacterium phosphoreum: EC50 = 670 mg/L/15 min Photobacterium phosphoreum: EC50 = 670 mg/L/30min	EC50 = 28.9 mg/L/48h
Ethyl alcohol	Not listed	Leucidus idus: LC50 = 8.14 mg/L/48h	Photobacterium phosphoreum: EC50 = 34634 mg/L/30 min Photobacterium phosphoreum: EC50 = 35470 mg/L/5 min	EC50 = 9268 mg/L/48h EC50 = 10800 mg/L/24h

**Persistence and Degradability** No information available

**Bioaccumulation/ Accumulation** No information available

**Mobility**

Component	log Pow
Chloroform	2
Ethyl alcohol	-0.32

**13. DISPOSAL CONSIDERATIONS**

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Chloroform - 67-66-3	U044	-

**14. TRANSPORT INFORMATION**

**DOT**

**UN-No** UN1888  
**Proper Shipping Name** CHLOROFORM  
**Hazard Class** 6.1  
**Packing Group** III

14. TRANSPORT INFORMATION

**TDG**

UN-No UN1888  
 Proper Shipping Name CHLOROFORM  
 Hazard Class 6.1  
 Packing Group III

**IATA**

UN-No UN1888  
 Proper Shipping Name CHLOROFORM  
 Hazard Class 6.1  
 Packing Group III

**IMDG/IMO**

UN-No UN1888  
 Proper Shipping Name CHLOROFORM  
 Hazard Class 6.1  
 Packing Group III

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Chloroform	X	X	-	200-663-8	-		X	X	X	X	KE-34076 X
Ethyl alcohol	X	X	-	200-578-6	-		X	X	X	X	KE-13217 X

Legend:

- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

TSCA 12(b) Not applicable

**SARA 313**

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Chloroform	67-66-3	99	0.1

**SARA 311/312 Hazardous Categorization**

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

**Clean Water Act**

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Chloroform	X	10 lb	X	X

**Clean Air Act**

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Chloroform	X		-

**OSHA**

Not applicable

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Chloroform	10 lb	10 lb

**California Proposition 65**

This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65	Prop 65 NSRL
Chloroform	67-66-3	Carcinogen	20 µg/day 40 µg/day
Ethyl alcohol	64-17-5	Developmental	-

**State Right-to-Know**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island



Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Chloroform	X	X	X	X	X
Ethyl alcohol	X	X	X	-	X

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Chloroform	15000 lb STQ

**Other International Regulations**

**Mexico - Grade** No information available

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**WHMIS Hazard Class**

D1B Toxic materials  
 D2A Very toxic materials  
 D2B Toxic materials



**16. OTHER INFORMATION**

**Prepared By** Regulatory Affairs  
 Thermo Fisher Scientific  
 Tel: (412) 490-8929

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**Revision Summary** "\*\*\*\*", and red text indicates revision

**Disclaimer**

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of MSDS**