1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Chloroform, stabilized with amylene
Cat No.: C297-4, C603-4, C607-1, C607-4, C607SK-1, C607SK-4
Synonyms: Methane trichloride; Methenyl trichloride; Formyl trichloride
Recommended Use: Laboratory chemicals

Company: Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

WARNING!
Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. HAZARDS IDENTIFICATION

Harmful if swallowed. Irritating to eyes, respiratory system and skin. Symptoms of overexposure are dizziness, headache, tiredness, nausea, unconsciousness, cessation of breathing.

Appearance: Colorless
Physical State: Liquid
Odor: Aromatic

Target Organs: Skin, Respiratory system, Eyes, Liver, Heart, Kidney, Central nervous system (CNS)

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: Irritating to respiratory system. May be harmful if inhaled.
Ingestion: Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects: Possible cancer hazard based on tests with laboratory animals.

See Section 11 for additional Toxicological information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Haz/Non-haz</th>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chloroform</td>
<td>67-66-3</td>
<td>&gt;95</td>
</tr>
</tbody>
</table>

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.

Autoignition Temperature  
No information available.

Explosion Limits  
Upper No data available  
Lower No data available

Suitable Extinguishing Media  
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media  
No information available.

Hazardous Combustion Products  
No information available.

Sensitivity to mechanical impact  
No information available.

Sensitivity to static discharge  
No information available.

Specific Hazards Arising from the Chemical  
Keep product and empty container away from heat and sources of ignition

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

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

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions  
Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions  
Should not be released into the environment.
Methods for Containment and Clean Up

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

7. HANDLING AND STORAGE

Handling

Handling: Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Use only under a chemical fume hood.

Storage

Storage: Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from direct sunlight.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>TWA: 10 ppm</td>
<td>(Vacated) TWA: 2 ppm (Vacated) TWA: 9.78 mg/m³ Ceiling: 50 ppm Ceiling: 240 mg/m³</td>
<td>IDLH: 500 ppm STEL: 2 ppm STEL: 9.78 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>TWA: 5 ppm TWA: 24.4 mg/m³</td>
<td>TWA: 10 ppm TWA: 50 mg/m³ STEL: 50 ppm STEL: 225 mg/m³</td>
<td>TWA: 10 ppm</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>aromatic</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available.</td>
</tr>
<tr>
<td>pH</td>
<td>No information available.</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>213 mbar @ 20 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>0.56 mPa s at 20 °C</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>61 - 61°C / 141.8 - 142.7°F</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>-63°C / -81.4°F</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No information available.</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No information available.</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available.</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.480</td>
</tr>
</tbody>
</table>
9. PHYSICAL AND CHEMICAL PROPERTIES

Solubility
Slightly soluble in water

log Pow
No data available

Molecular Weight
119.38

Molecular Formula
C H Cl3

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions. Sensitivity to light.

Conditions to Avoid

Incompatible Materials
Strong oxidizing agents

Hazardous Decomposition Products
Carbon monoxide (CO), Carbon dioxide (CO2), Hydrogen chloride gas, Phosgene, Chlorine

Hazardous Polymerization
Hazardous polymerization does not occur.

Hazardous Reactions
None under normal processing.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral (Rat)</th>
<th>LD50 Dermal (Rabbit)</th>
<th>LC50 Inhalation (Rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>695 mg/kg</td>
<td>3980 mg/kg</td>
<td>47,702 mg/L</td>
</tr>
</tbody>
</table>

Irritation
Irritating to eyes, respiratory system 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.

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>A3</td>
<td>Group 2B</td>
<td>Reasonably Anticipated</td>
<td>X</td>
<td>A3</td>
</tr>
</tbody>
</table>

ACGIH: (American Conference of Governmental Industrial Hygienists)
A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen

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

NTP: (National Toxicity Program)
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen
Sensitization  No information available.
Mutagenic Effects  No information available.
Reproductive Effects  No information available.
Developmental Effects  No information available.
Teratogenicity  No information available.
Other Adverse Effects  See actual entry in RTECS for complete information.
Endocrine Disruptor Information  No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>EC50 = 560 mg/L/48h</td>
<td>300 mg/L LC50 96 h</td>
<td>Photobacterium phosphoreum: EC50 = 520 mg/L/5 min</td>
<td>EC50 = 28.9 mg/L/48h</td>
</tr>
<tr>
<td></td>
<td>71 mg/L LC50 96 h</td>
<td>18 mg/L LC50 96 h</td>
<td>Photobacterium phosphoreum: EC50 = 670 mg/L/15 min</td>
<td>Photobacterium phosphoreum: EC50 = 670 mg/L/30min</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Photobacterium phosphoreum: EC50 = 670 mg/L/30min</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence and Degradability  No information available
Bioaccumulation/ Accumulation  No information available
Mobility

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>2</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Component</th>
<th>RCRA - U Series Wastes</th>
<th>RCRA - P Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform - 67-66-3</td>
<td>U044</td>
<td>-</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT  UN-No  UN1888
Proper Shipping Name  CHLOROFORM
Hazard Class  6.1
### 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

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>CHINA</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>200-663-8</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

**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 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**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>67-66-3</td>
<td>&gt;95</td>
<td>0.1</td>
</tr>
</tbody>
</table>
SARA 311/312 Hazardous Categorization

- Acute Health Hazard: Yes
- Chronic Health Hazard: Yes
- Fire Hazard: No
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: No

Clean Water Act

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Hazardous Substances</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>X</td>
<td>10 lb</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Clean Air Act

<table>
<thead>
<tr>
<th>Component</th>
<th>HAPS Data</th>
<th>Class 1 Ozone Depletors</th>
<th>Class 2 Ozone Depletors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA EHS RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>10 lb</td>
<td>10 lb</td>
</tr>
</tbody>
</table>

California Proposition 65
This product contains the following Proposition 65 chemicals:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>California Prop. 65</th>
<th>Prop 65 NSRL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>67-66-3</td>
<td>Carcinogen</td>
<td>20 µg/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Developmental</td>
<td>40 µg/day</td>
</tr>
</tbody>
</table>

State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Component</th>
<th>DHS Chemical Facility Anti-Terrorism Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroform</td>
<td>15000 lb STQ</td>
</tr>
</tbody>
</table>

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
D2A Very toxic materials

16. OTHER INFORMATION

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date
20-Oct-2009

Print Date
07-Jun-2013

Revision Summary
(M)SDS sections updated 2 16

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