

Safety Data Sheet

1. IDENTIFICATION

Product Identifier: Chloroform

Product Code(s): C1002, C1036, C1060, C1065, CP1009

Synonyms: Trichloromethane; Methyl Trichloride; Trichloroform

Recommended Use: For manufacturing, industrial, and laboratory use only. For use in polymer manufacturing and as a laboratory reagent.

Uses Advised Against: Not for food, drug, or household use.

Supplier: Rocky Mountain Reagents, Inc.
4621 Technology Drive, Golden, CO 80403
Phone: (303) 762-0800 Fax: (303) 762-1240

Emergency Phone Number: (800) 255-3924 (CHEM-TEL)

2. HAZARDS IDENTIFICATION

Hazard Classifications:

Acute Toxicity – Oral:	Category 4
Skin Corrosion/Irritation:	Category 2
Eye Damage/Irritation:	Category 2A
Carcinogenicity:	Category 2
Toxic to Reproduction:	Category 2
Specific Target Organ Toxicity (Single Exposure):	Category 3
Specific Target Organ Toxicity (Repeated Exposure):	Category 2

Signal Word: WARNING

Hazard Statements:

- Harmful if swallowed.
- Causes skin irritation.
- Causes serious eye irritation.
- Suspected of causing cancer.
- Suspected of damaging fertility or the unborn child.
- May cause drowsiness or dizziness.
- May cause damage to liver, kidneys, and central nervous system through prolonged or repeated exposure.

Pictograms:



Precautionary Statements:

- Prevention:** Wash thoroughly after handling.
Do not eat, drink, or smoke while using this product.
Wear protective gloves, protective clothing, eye protection, and face protection.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe fumes, mist, vapors, or spray.
Use only outdoors or in a well-ventilated area.
- Response:** If swallowed: Call a poison center or doctor if you feel unwell. Rinse mouth.
If on skin: Wash with plenty of water. If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash it before reuse.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
If exposed or concerned: Get medical attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor if you feel unwell.
Get medical attention if you feel unwell.
- Storage:** Store locked up.
Store in a well-ventilated place. Keep container tightly closed.
- Disposal:** Dispose of contents and container in accordance with local, regional, national, and international regulations.
- Hazards Not Otherwise Classified:** Exposure to alcohols may enhance the toxic effects of this product.
May be harmful to aquatic life.
May cause adverse reproductive effects.
- Toxicity Statement:** Not applicable.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Component	Common Name / Synonyms	CAS#	Chemical Formula	% by Weight
Chloroform	Trichloroform	67-66-3	CHCl ₃	> 98.5
Ethanol	Ethyl Alcohol	64-17-5	C ₂ H ₅ OH	< 1.5

Trade Secret Statement: Not applicable.

4. FIRST AID MEASURES

First Aid Procedures:

- Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious, or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce

artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call poison control or a doctor/physician immediately if you feel unwell.

Ingestion: Rinse mouth. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head low so that vomit does not enter lungs. Never give anything by mouth to an unconscious person. Call a physician or poison control center if you feel unwell.

Skin Contact: Wash skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention if symptoms occur.

Eye Contact: Check for and remove contact lenses if present and easy to do. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention if irritation persists.

General Advice: Poison information centers in each state can provide additional assistance for scheduled poisons. Ensure that medical personnel and those providing first aid are aware of the material(s) involved and take precautions to protect themselves.

Symptoms and Effects: May cause irritation to eyes, skin, respiratory tract, and gastrointestinal tract. Excessive exposure may cause headache, dizziness, or loss of consciousness.

**Immediate Medical Care/
Special Treatment:** Call a physician or Poison Control Center immediately if you feel unwell. Treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable Extinguishing Media: Water spray, dry powder, alcohol resistant foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a solid (straight) water stream, as it may scatter and spread fire.

**Hazardous Combustion
Products:** Carbon oxides, hydrogen chloride, chlorine, phosgene.

Specific Hazards: Not flammable. Excessive thermal conditions may yield hazardous decomposition products listed above.

**Special Protective Equipment/
Precautions for Firefighters:** As in any fire, wear MSHA/NIOSH approved (or equivalent), self-contained, positive-pressure or pressure-demand breathing apparatus and full protective gear. Use water spray to cool unopened containers. Move containers from fire area, if you can do so without risk. In the event of fire and/or explosion, do not breathe product fumes.

6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions and
Protective Equipment:** Ventilate area of leak or spill. Avoid breathing product fumes. Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Keep upwind. Keep out of low areas. Wear appropriate personal protective equipment (see Section 8). Avoid contact with eyes, skin, and clothing.

Emergency Procedures: Evacuate surrounding personnel as needed. In case of chemical emergency, or if unsure how to address an accidental release, consult a professional (see Section 1).

Methods for Containment: Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements, or confined areas. Dike the spilled material, where this is possible. Product should not be released to the environment. Contain and recover liquid when possible.

Methods for Cleanup: Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, or fleece) and place in a non-combustible container for reclamation or disposal. Do not flush to sewer. Clean contaminated surface thoroughly. Never return spills in original containers for reuse. Clean up in accordance with all applicable regulations.

7. HANDLING AND STORAGE

Handling: Wear personal protective equipment (see Section 8). Use only in well-ventilated areas. Provide sufficient air exchange and/or exhaust in work areas. Avoid contact with skin, eyes, and clothing. Do not breathe vapors, fumes, or spray mist. Do not ingest. When using, do not eat, drink, or smoke. Keep away from incompatible materials (see Section 10). Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Containers of this material may be hazardous when empty, as they retain product residues (vapors, liquids). Observe all warnings and precautions listed for this product.

Storage: Store in a cool, dry, ventilated area. Store in a segregated and approved area away from, incompatible materials (see Section 10). Store in original container. Keep containers tightly closed and upright. Keep away from food, drink, and animal foodstuffs. Keep out of the reach of children. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of this product.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits:

Chloroform:	ACGIH: TWA:	10 ppm
	OSHA: CEIL:	50 ppm 240 mg/m ³

Ethanol:	ACGIH: STEL:	1000 ppm
	OSHA: PEL:	1000 ppm 1900 mg/m ³

Engineering Controls: Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Measures:

Eye/Face Protection: Wear safety glasses with side shields or safety goggles. Wear a face shield. Maintain approved eye wash station and accessible rinse facilities in work area.

Skin Protection: Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.

Respiratory Protection: An air-purifying, NIOSH-approved respirator with appropriate cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Use a positive-pressure, air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are unknown, or if any other circumstances exist where air-purifying respirators may not provide adequate protection.

Specific Requirements for Personal Protective Equipment: Ensure that glove material is compatible with this product. This information is available from glove manufacturers.

9. PHYSICAL AND CHEMICAL PROPERTIES

Unless otherwise indicated, all properties are given at 25 °C and standard pressure.

Appearance:	Colorless, transparent liquid.
Odor:	Mild, sweet, ethereal.
Odor Threshold:	85 ppm
Formula Weight:	119.38 (as CHCl ₃)
pH:	No information found.
Melting/Freezing Point:	- 64 °C
Boiling Point/Range:	61 °C
Decomposition Temperature:	225 °C
Flash Point:	Not applicable.
Auto-ignition Temperature:	No information found.
Flammability:	Not flammable or explosive.
Flammability/Explosive Limits:	Not applicable.
Solubility:	5 g/L water at 25 °C
Vapor Pressure:	160 mmHg at 20 °C
Vapor Density:	4.1 (Air = 1)
Specific Gravity:	1.492 (Water = 1) at 25 °C
Evaporation Rate:	11.6 (Butyl Acetate = 1)
Viscosity:	0.56 mPa s
Partition Coefficient (n-octanol/water):	1.97

10. STABILITY AND REACTIVITY

Reactivity Data:	No information found.
Chemical Stability:	Stable under normal conditions.
Conditions to Avoid:	Heat, generation of vapors, exposure to air, exposure to light, incompatible materials.
Incompatible Materials:	Strong oxidizers, acids, strong bases, alkalis, polymers, organic materials.
Hazardous Decomposition Products:	Carbon oxides, hydrogen chloride, chlorine, phosgene.
Possibility of Hazardous Reactions:	May react vigorously or violently if exposed to extreme thermal conditions or to the incompatible materials listed above.
Hazardous Polymerization:	May cause certain substances to polymerize. Avoid contact with organic materials and nonhalogenated polymers.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure:	Inhalation, ingestion, skin contact, eye contact.
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Acute Effects:	Harmful if swallowed, inhaled, absorbed through the skin, or contacted with the eyes. Causes irritation to the eyes, skin, respiratory tract, and gastrointestinal tract. May cause dizziness or unconsciousness. May affect the kidneys, liver, and central nervous system.																		
Chronic Effects:	Prolonged or repeated exposure may cause damage to liver, kidneys, skin, central nervous system, and/or respiratory system. Prolonged or repeated exposure may cause dermatitis, adverse reproductive effects, mutagenic effects, birth defects, and cancer.																		
Toxicological Data:	<table> <tr> <td>Chloroform:</td> <td>LD₅₀ Oral, Rat:</td> <td>908 mg/kg</td> </tr> <tr> <td></td> <td>LC₅₀ Inhalation, Rat:</td> <td>47.7 mg/L 4 h</td> </tr> <tr> <td></td> <td colspan="2">Causes skin and eye irritation based on animal data.</td> </tr> <tr> <td></td> <td colspan="2">May cause reproductive effects based on animal data.</td> </tr> <tr> <td>Ethanol:</td> <td>LD₅₀ Oral, Rat:</td> <td>7060 mg/kg</td> </tr> <tr> <td></td> <td>LC₅₀ Inhalation, Rat:</td> <td>124.7 mg/L 4 h</td> </tr> </table>	Chloroform:	LD ₅₀ Oral, Rat:	908 mg/kg		LC ₅₀ Inhalation, Rat:	47.7 mg/L 4 h		Causes skin and eye irritation based on animal data.			May cause reproductive effects based on animal data.		Ethanol:	LD ₅₀ Oral, Rat:	7060 mg/kg		LC ₅₀ Inhalation, Rat:	124.7 mg/L 4 h
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Symptoms of Exposure:	Irritation, dizziness, drowsiness, headache, nervous system effects, nausea, vomiting, anesthetic effects, decrease in motor function, shortness of breath, unconsciousness, circulatory collapse, jaundice, liver enlargement.																		
Carcinogenic Effects:	May cause cancer based on animal and microorganism data.																		
OSHA HCS:	Chloroform: Carcinogen																		
ACGIH:	Chloroform: A3 – Confirmed animal carcinogen with unknown relevance to humans																		
IARC:	Chloroform: 2B – Possibly carcinogenic to humans																		
NTP:	Chloroform: Reasonably anticipated to be a human carcinogen																		

12. ECOLOGICAL INFORMATION

Ecotoxicological Data:	Chloroform:	EC ₅₀ , Water Flea (<i>Daphnia magna</i>):	28.9 mg/L 48 h
		LC ₅₀ , Fathead Minnow (<i>Pimephales promelas</i>):	71 mg/L 96 h
		LC ₅₀ , Rainbow Trout (<i>Oncorhynchus mykiss</i>):	18 mg/L 96 h
	Ethanol:	EC ₅₀ , Water Flea (<i>Daphnia magna</i>):	7.7 mg/L 48 h
		LC ₅₀ , Fathead Minnow (<i>Pimephales promelas</i>):	> 100 mg/L 96 h
Persistence and Degradability:	This product is not readily biodegradable.		
Environmental Effects:	Toxic to aquatic life. Do not allow product to reach groundwater, bodies of water, or sewage system.		
	Partition Coefficient (n-octanol/water):	1.97	
	Bioconcentration Factor:	6	

13. DISPOSAL INFORMATION

Disposal Instructions:	All wastes must be handled in accordance with local, state, and federal regulations. Minimize exposure to product waste (see Section 8). Do not dispose unused waste down drains or into sewers.
Contaminated Packaging:	Because emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.
Waste Codes:	Chloroform: U044 (US RCRA Hazardous Waste U List)

14. TRANSPORT INFORMATION

DOT:

UN Number: UN1888

Proper Shipping Name: Chloroform

Hazard Class: 6.1

Packing Group: III

ERG Number: 151

Environmental Hazard Regulations: Not marine pollutant.

Other Transport Precautions: DOT Reportable Quantity: 10 lb

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA: This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Inventory: All components of this product are on the U.S. TSCA Inventory.

U.S. EPCRA (SARA Title III):

Section 302: Extremely Hazardous Substance: Chloroform
Threshold Planning Quantity: 10,000 lb
Reportable Quantity: 10 lb

Sections 311/312:

Hazard Category	List (Yes/No)
Section 311 – Hazardous Chemical	Yes
Immediate Hazard	Yes
Delayed Hazard	Yes
Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	No

Section 313: Component: Chloroform
De Minimis Concentration: 0.1%

CERCLA Reportable Quantities: Chloroform: 10 lb

International Inventories:

Country or Region	Inventory Name	On Inventory (Yes/No)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*A "Yes" indicates that the listed components of this product comply with the inventory requirements administered by the governing country or region.

16. OTHER INFORMATION**Disclaimer:**

Rocky Mountain Reagents, Inc. provides the information in this Safety Data Sheet in the belief that it is reliable but assumes no responsibility for its completeness or accuracy. The physical properties reported in this SDS are obtained from literature and do not constitute product specifications. Rocky Mountain Reagents, Inc. makes and gives no representations or warranties with respect to the information contained herein or the product to which it refers, whether express, implied, or statutory, including without limitation, warranties of accuracy, completeness, merchantability, non-infringement, performance, safety, suitability, stability, and fitness for a particular purpose. No warranty against infringement of any patent, copyright or trademark is made or implied. This SDS is intended only as a guide to the appropriate handling of the material by a properly trained person. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. Accordingly, Rocky Mountain Reagents, Inc. assumes no liability whatsoever for the use of or reliance upon this information including results obtained, incidental or consequential damages, or lost profits.

Issue Date:

June 2, 2020

Reason for Revision:

Update of product code information in Section 1 over 02/03/2017 version.