

Chloroform

SECTION 1. IDENTIFICATION

Product Identifier	Chloroform
Other Means of Identification	Trichloromethane
Other Identification	EU EINECS/ELINCS Number: 200-663-8
Restrictions on Use	All others.
Manufacturer/Supplier Identifier	Caledon Laboratories Ltd, 40 Armstrong Avenue, Georgetown, Ontario, L7G-4R9, (905) 877-0101, www.caledonlabs.com
Emergency Phone No.	CANUTEC, (613) 996-6666
SDS No.	0025

SECTION 2. HAZARD IDENTIFICATION

Classification

Acute toxicity (Oral) - Category 4; Acute toxicity (Dermal) - Category 2; Acute toxicity (Inhalation) - Category 3; Eye irritation - Category 2B; Carcinogenicity - Category 2; Reproductive toxicity - Category 2; Specific target organ toxicity (single exposure) - Category 3; Specific target organ toxicity (repeated exposure) - Category 1

Label Elements



Signal Word:

Danger

Hazard Statement(s):

Toxic if inhaled.

Harmful if swallowed.

Causes skin and eye irritation.

May cause drowsiness or dizziness.

Suspected of causing cancer.

Suspected of damaging fertility or the unborn child.

Causes damage to organs (kidneys, liver, nervous system, respiratory system) through prolonged or repeated exposure.

Precautionary Statement(s):

Prevention:

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume/gas/mist/vapours/spray.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Response:

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF ON SKIN: Wash with plenty of water.

Product Identifier:	Chloroform
SDS No.:	0025
Date of Preparation:	September 06, 2016

Take off immediately all 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.

Call a POISON CENTRE or doctor if you feel unwell.

IF exposed or concerned: Get medical advice/attention.

Storage:

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Disposal:

Dispose of contents and container in accordance with local, regional, national and international regulations.

Other Hazards

Health Hazards Not Otherwise Classified (HHNOC): None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance:

Chemical Name	CAS No.	%	Other Identifiers
Chloroform	67-66-3	98.5 - 100	EU EINECS/ELINCS Number: 200-663-8
Ethanol	64-17-5	0.5 - 1.5	EU EINECS/ELINCS Number: 200-578-6

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Remove source of exposure or move to fresh air. Keep at rest in a position comfortable for breathing. Call a Poison Centre or doctor.

Skin Contact

Wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 5 minutes. If skin irritation occurs, get medical advice or attention. Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Clean clothing, shoes and leather goods.

Eye Contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice or attention.

Ingestion

Rinse mouth with water. Get medical advice or attention if you feel unwell.

Most Important Symptoms and Effects, Acute and Delayed

If inhaled: can harm the nervous system. Symptoms may include headache, nausea, dizziness, drowsiness and confusion. A severe exposure can cause unconsciousness. Can cause irregular heartbeat. If on skin: symptoms include pain, redness, and swelling. If in eyes: symptoms include sore, red eyes, and tearing. May cause serious eye damage. May irritate or burn the eyes. Permanent damage including blindness may result.

Delayed Symptoms/Effects:

- Respiratory System Effects: Chemical pneumonitis and delayed pulmonary edema
- Skin: Repeated and prolonged skin contact may cause a chronic dermatitis
- May cause delayed hepatotoxicity
- Acute renal toxicity has been rarely reported
- Suspected of causing cancer
- Suspected of damaging fertility or the unborn child.

Immediate Medical Attention and Special Treatment

Target Organs

Product Identifier: Chloroform

SDS No.: 0025

Date of Preparation: September 06, 2016

Kidneys, liver, nervous system.

Special Instructions

Protect against vapour/gas exposure. Do not breathe gas, fumes, vapour, mist, or spray.
Protect against liquid contamination/frostbite. Avoid contact with skin and eyes. Use personal protective equipment.

Medical Conditions Aggravated by Exposure

Kidney conditions, liver conditions, nervous system conditions.

Notes to Physician: For ingestion, nasogastric aspiration is recommended if volume ingested is of sufficient volume to aspirate. Protect the airway, onset of respiratory depression may be rapid. Consider EKG monitoring to detect cardiac arrhythmias. Monitor blood pressure for hypotension. Avoid catecholemines, especially in the presence of arrhythmias. For very high exposures, (intentional, solvent abuse), oxygen, advanced cardiac life support, intubation and volume support may be required. For skin exposures, wash the area with soap and water, and treat any irritation symptomatically. Thorough decontamination of the eye is important. See section 11 for additional toxicology information.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Not combustible. Use extinguishing agent suitable for surrounding fire. Use water to keep non-leaking, fire-exposed containers cool.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Product

Does not burn. Closed containers may rupture violently when heated releasing contents. Heating increases the release of toxic vapour. Not sensitive to static discharge.

Corrosive chlorine; corrosive hydrogen chloride; corrosive phosgene.

Special Protective Equipment and Precautions for Fire-fighters

Evacuate area. Approach fire from upwind to avoid hazardous vapours or gases. Knock down vapours or gases with water fog or fine water spray. Dike and recover contaminated water for appropriate disposal.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Use the personal protective equipment recommended in Section 8 of this safety data sheet. Increase ventilation to area or move leaking container to a well-ventilated and secure area. May accumulate in hazardous amounts in low-lying areas especially inside confined spaces, if ventilation is not sufficient.

Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway.

Methods and Materials for Containment and Cleaning Up

Stop or reduce leak if safe to do so. Dike spilled product to prevent runoff. Remove or recover liquid using pumps or vacuum equipment. Contain and soak up spill with absorbent that does not react with spilled product. Place used absorbent into suitable, covered, labelled containers for disposal. Store recovered product in suitable containers that are: tightly-covered.

Other Information

Report spills to local health, safety and environmental authorities, as required.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Avoid breathing in this product. Do not get in eyes, on skin or on clothing. Do not swallow. Do NOT eat, drink or store food in work areas. Do NOT smoke in work areas. Wash hands thoroughly after handling this material.

Product Identifier: Chloroform
SDS No.: 0025
Date of Preparation: September 06, 2016

Conditions for Safe Storage

Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Store in a cool, dry area. Store in a well-ventilated area. Prevent water or moist air from entering storage tanks or containers. Do not enter confined spaces without following proper confined space entry procedures. Do not store in aluminum container or use aluminum fittings or transfer lines. Do not reuse drum without recycling or reconditioning in accordance with any applicable federal, state or local laws. Do not use cutting or welding torches, open flames or electric arcs on empty or full containers. Keep separated from incompatible substances (see Section 10 of SDS).

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Chemical Name	ACGIH TLV®		OSHA PEL		AIHA WEEL	
	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
Chloroform	10 ppm		2 ppm	50 ppm		
Ethanol		1000 ppm				

Appropriate Engineering Controls

Use local exhaust ventilation and enclosure, if necessary, to control amount in the air. Provide eyewash and safety shower if contact or splash hazard exists.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.
Viton®, polyethylene, polyvinyl alcohol.

Respiratory Protection

Concentrated product: wear a NIOSH approved air-purifying respirator with an organic vapour cartridge. For non-routine or emergency situations: wear a NIOSH approved self-contained breathing apparatus (SCBA) or supplied air respirator.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Clear.
Odour	Sweet
Odour Threshold	200 ppm
pH	Not applicable
Melting Point/Freezing Point	-63.5 °C (-82.3 °F) (melting); -63.5 °C (-82.3 °F) (freezing)
Initial Boiling Point/Range	61.1 °C (142.0 °F)
Flash Point	Not applicable
Evaporation Rate	0.56 (diethyl ether = 1)
Flammability (solid, gas)	Not applicable
Upper/Lower Flammability or Explosive Limit	Not applicable (upper); Not applicable (lower)
Vapour Pressure	160 mm Hg at 20 °C
Vapour Density (air = 1)	4.1
Relative Density (water = 1)	1.4 at 25 °C
Solubility	0.822 g/100 mL (Slightly soluble) in water; Soluble in all proportions in common organic solvents.

Product Identifier: Chloroform

SDS No.: 0025

Date of Preparation: September 06, 2016

Partition Coefficient, n-Octanol/Water (Log Kow)	1.97
Auto-ignition Temperature	> 1000 °C (1832 °F)
Decomposition Temperature	Not available
Viscosity	0.379 mm ² /s at 20 °C (kinematic); 0.563 mPa.s at 20 °C (dynamic)
Other Information	
Physical State	Liquid
Molecular Formula	CHCl ₃
Molecular Weight	119.37

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

Reacts in the presence of heat. May cause an explosion. Container may burst.

Conditions to Avoid

High temperatures. High energy sources, e.g. welding arcs. Sunlight. Light. Open flames, sparks, static discharge, heat and other ignition sources.

Incompatible Materials

Strong bases (e.g. sodium hydroxide), strong oxidizing agents (e.g. perchloric acid), metals (e.g. aluminum). Metallic fines or powders aluminum, disilane. Magnesium, potassium, sodium.

Hazardous Decomposition Products

Corrosive chlorine; corrosive hydrogen chloride; corrosive phosgene.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation; skin contact; eye contact; ingestion.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Chloroform	8000-9770 mg/m ³ (rat) (4-hour exposure)	908-1336 mg/kg (rat)	> 20000 mg/kg (rabbit)
Ethanol	31623 ppm (rat) (4-hour exposure)	7060 mg/kg (rat)	20000 mg/kg (rabbit)

Skin Corrosion/Irritation

Animal tests show moderate or severe irritation. Animal tests show skin corrosion following prolonged exposure (24 hours). Contact can cause pain, redness, burns, and blistering. Permanent scarring can result.

Serious Eye Damage/Irritation

Animal tests show serious eye irritation.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

May cause depression of the central nervous system. Symptoms may include headache, nausea, dizziness, drowsiness and confusion. A severe exposure can cause unconsciousness. May cause irregular heartbeat, harmful effects on the kidneys, harmful effects on the liver.

Skin Absorption

Product Identifier: Chloroform
 SDS No.: 0025
 Date of Preparation: September 06, 2016

May be harmful based on animal tests.

Ingestion

May cause damage to organs harmful effects on the kidneys, harmful effects on the liver. Unconsciousness and death.

Aspiration Hazard

No information was located.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

Causes effects similar to STOT (Specific Target Organ Toxicity) - Single Exposure, as described above.

Respiratory and/or Skin Sensitization

No information was located for respiratory sensitization. Not known to be a skin sensitizer.

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
Chloroform		A3		

May cause cancer based on animal studies.

Reproductive Toxicity

Development of Offspring

May harm the unborn child.

Sexual Function and Fertility

Conclusions cannot be drawn from the limited studies available.

Effects on or via Lactation

Can transfer to mother's milk.

Germ Cell Mutagenicity

Conclusions cannot be drawn from the limited studies available.

Interactive Effects

Alcohol may enhance toxic effects. May potentiate other agents that cause central nervous system (CNS) and respiratory system depression, such as alcohol, opiates. Liver toxicity may be enhanced by other agents that cause liver damage, such as alcohol, acetaminophen. Catecholamines may potentiate arrhythmias.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

No information was located.

Acute Aquatic Toxicity

Chemical Name	LC50 Fish	EC50 Crustacea	ErC50 Aquatic Plants	ErC50 Algae
Chloroform	43.8 mg/L (Oncorhynchus mykiss (rainbow trout); 96-hour; static)	28.9 mg/L (Daphnia magna (water flea); 96-hour; static)		
Ethanol	> 13400 mg/L (Pimephales promelas (fathead minnow); 96-hour)			

Persistence and Degradability

Slow but substantial biodegradation apparently can occur when the proper microbial populations exist and are acclimated to the chemical. Expected to be removed rapidly from aquatic environments by evaporation.

Bioaccumulative Potential

Product Identifier: Chloroform
SDS No.: 0025
Date of Preparation: September 06, 2016

This product and its degradation products are not expected to bioaccumulate based on the fish bioconcentration factor (BCF). BCF 2.9 - 10.35.

Mobility in Soil

If released into the environment, this product can move rapidly through the soil. Contamination of groundwater could occur.

Other Adverse Effects

There is no information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Recycle and reuse product, if possible. Dispose of contents and container in accordance with local, regional, national and international regulations.

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
Canadian TDG	UN1888	Chloroform	6.1	III
US DOT	UN1888	Chloroform	6.1	III
IMO (Marine)	UN1888	Chloroform	6.1	III

Environmental Hazards Not applicable

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

Listed on the DSL.

CEPA - National Pollutant Release Inventory (NPRI)

Part 1A.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

Listed on the TSCA Inventory.

SECTION 16. OTHER INFORMATION

NFPA Rating Health - 2 Flammability - 0 Instability - 0

SDS Prepared By Caledon Laboratories Ltd

Date of Preparation September 06, 2016

Revision Indicators The following SDS content was changed on August 17, 2016:
Section 11 - Toxicological Information; Carcinogenicity.
The following SDS content was changed on August 30, 2016:
Section 8 - Exposure Controls/Personal Protection; Exposure Guidelines.
The following SDS content was changed on September 12, 2016:
Section 11 - Toxicological Information; LC50/LD50 values.

Product Identifier: Chloroform

SDS No.: 0025

Date of Preparation: September 06, 2016

References

CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).
Supplier Safety Data Sheets.

Disclaimer

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Product Identifier: Chloroform
SDS No.: 0025
Date of Preparation: September 06, 2016

Page 08 of 08