TCI AMERICA

SAFETY DATA SHEET

Revision number: 1
Revision date: 07/06/2018

1. IDENTIFICATION

Product name: Chloroform (stabilized with 2-Methyl-2-butene) [for HPLC Solvent]
Product code: C1111

Product use: For laboratory research purposes.
Restrictions on use: Not for drug or household use.

Company:
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Chemical Emergencies:
TCI America (8:00am - 5:00pm) PST
+1-503-286-7624
Transportation Emergencies:
Chemtrec 24-Hour
+1-800-424-9300 (U.S.A.)
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Responsible department:
TCI America
Environmental Health Safety and Security
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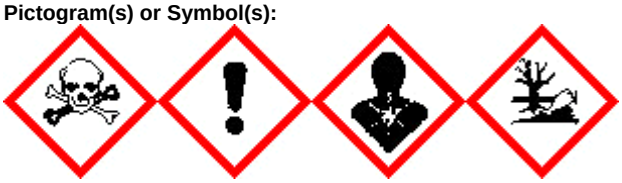
2. HAZARD(S) IDENTIFICATION

OSHA Haz Com: CFR 1910.1200:
WHMIS 2015:
Acute Toxicity - Oral [Category 4]
Acute Toxicity - Inhalation [Category 3]
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 1]
Specific Target Organ Toxicity (Single Exposure) [Category 3]
Specific Target Organ Toxicity (Repeated Exposure) [Category 1]
Aquatic Hazard (Acute) [Category 3]
Aquatic Hazard (Long-Term) [Category 1]

Signal word: Danger!

Hazard Statement(s):
Harmful if swallowed
Toxic if inhaled
Causes skin irritation
Causes serious eye irritation
Suspected of causing cancer
Suspected of damaging fertility or the unborn child
Harmful to aquatic life
Very toxic to aquatic life with long lasting effects
Causes damage to: Liver Respiratory System Cardiovascular System Kidney
May cause drowsiness or dizziness.
Causes damage to organs through prolonged or repeated exposure: Liver Respiratory System Kidney Central Nervous System

Pictogram(s) or Symbol(s):



Precautionary Statement(s):

[Prevention] Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist, vapors or spray. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Do not eat, drink or smoke when using this product. Wash hands and face thoroughly after handling. Wear protective gloves, protective clothing, face protection.

[Response] If swallowed: Call a poison center or doctor if you feel unwell. Rinse mouth. If on skin: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice or attention. Take off contaminated clothing and wash it before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor. 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 advice or attention. If exposed: Call a poison center or doctor. Collect spillage.
[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 regulations (e.g. US: 40 CFR Part 261, EU:91/156/EEC, JP: Waste Disposal and Cleaning Act, etc.).

Hazards not otherwise classified: [HNOC] None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture:	Substance
Components:	Chloroform (stabilized with 2-Methyl-2-butene) [for HPLC Solvent]
Percent:	>99.5%(GC)
CAS RN:	67-66-3
Molecular Weight:	119.37
Chemical Formula:	$CHCl_3$
Stabilizers:	2-Methyl-2-butene

4. FIRST-AID MEASURES

Description of first aid measures

Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician.
Skin contact:	Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Call a POISON CENTER or doctor/physician.
Eye contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Call a POISON CENTER or doctor/physician.
Ingestion:	Call a POISON CENTER or doctor/physician. Rinse mouth.

Symptoms/effects:

Acute:	Dizziness. Pain. Redness. Drowsiness.
Delayed:	May cause heritable genetic damage in humans. Possibly carcinogenic to humans.

Indication of any immediate medical attention:
Not available.
Notes to physician:
No data available

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:	Dry chemical, foam, water spray, carbon dioxide.
Hazardous combustion products:	These products include: Carbon oxides Halogenated compounds
Other specific hazards:	WARNING: Highly toxic HCl gas is produced during combustion.
Advice for firefighters:	Wear self-contained breathing apparatus if possible.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	Use personal protective equipment. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.
Environmental precautions:	Be careful not to let it flow into rivers, etc., since adverse effects on the environment are concerned.
Methods and materials for containment and cleaning up:	Absorb spilled material in a suitable absorbent (e.g. rag, dry sand, earth, saw-dust). In case of large amount of spillage, contain a spill by bunding. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

7. HANDLING AND STORAGE

Precautions for safe handling: Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent generation of vapour or mist. Wash hands and face thoroughly after handling.
Use a closed system if possible. Use a ventilation, local exhaust if vapour or aerosol will be generated.
Avoid all contact!

Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed. Store in a cool, dark and well-ventilated place.
Store under inert gas. Store locked up.
Store away from incompatible materials such as oxidizing agents.
Light-sensitive Air-sensitive

Packaging material: Comply with laws.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits:

ACGIH TLV(TWA): 10 ppm
OSHA PEL(CL): 50 ppm
JSOH OELs(TWA): 3 ppm (skin)

Appropriate engineering controls: Follow safe industrial engineering/laboratory practices when handling any chemical. Install a closed system or local exhaust. Also install safety shower and eye bath.

Personal protective equipment

Respiratory protection: Half or full facepiece respirator, self-contained breathing apparatus(SCBA), supplied air respirator, etc. Use respirators approved under appropriate government standards and follow local and national regulations.
Hand protection: Impervious gloves.
Eye protection: Safety goggles. A face-shield, if the situation requires.
Skin and body protection: Impervious protective clothing. Protective boots, if the situation requires.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C): Liquid
Form: Clear
Colour: Colorless
Odour: Pleasant
Odor threshold: No data available
Odour threshold: No data available

Melting point/freezing point:	-64°C (-83°F)	pH:	No data available
Boiling point/range:	60°C (140°F)	**Vapour pressure:**	No data available.
Decomposition temperature:	No data available	**Vapour density:**	4.12
Relative density:	1.49	**Dynamic Viscosity:**	No data available
Kinematic viscosity:	No data available		
Log Pow:	No data available	**Evaporation rate(Butyl Acetate=1):**	No data available
Flash point:	No data available	**Autoignition temperature:**	No data available
Flammability(solid, gas):	No data available	**Flammability or explosive limits:**	
		Lower:	No data available
		Upper:	No data available

Solubility(ies):

[Water] Very slightly soluble (0.8g/100mL, 20°C)
[Other solvents]
Miscible: Ether, Alcohols, Benzene, Carbon tetrachloride
Soluble: Many organic solvents

10. STABILITY AND REACTIVITY

Reactivity: No data available
Chemical stability: Stable under proper conditions.
Possibility of hazardous reactions: No special reactivity has been reported.
Incompatible materials: Oxidizing agents, Strong bases, Metals, Acetone
Hazardous decomposition products: Carbon monoxide, carbon dioxide etc

11. TOXICOLOGICAL INFORMATION

RTECS Number: FS9100000

Acute Toxicity:
ihl-hmn TCLo:10 mg/m³/1Y
orl-rat LD50:695 mg/kg
ihl-rat LC50:47702 mg/m³/4H
skn-rbt LD50:>20 g/kg

Skin corrosion/irritation:
skn-rbt 10 mg/24H open MLD

Serious eye damage/irritation:
eye-rbt 148 mg

Respiratory or skin sensitization:
No data available

Germ cell mutagenicity:
dni-hmn-hla 19 mmol/L
mmo-ssp 5 mg/L (+S9)
mmo-sato 20 ug/plate (+/-S9)

Carcinogenicity:
orl-mus TDLo:127 g/kg/92W-I
orl-rat TDLo:13832 mg/kg/2Y-C

IARC: Group 2B (Possibly carcinogenic to humans) .
NTP: b (Reasonably anticipated to be carcinogens).
OSHA: No data available

Reproductive toxicity:
orl-mus TDLo:2115 mg/kg (3W male/3W pre-5D post)
ihl-rat TCLo:300 ppm/7H (6-15D preg)
ihl-rat TCLo:20100 ug/m³/1H (7-14D preg)

Target organ(s):
Causes damage to: Liver Respiratory System Cardiovascular System Kidney
May cause drowsiness or dizziness.
Causes damage to organs through prolonged or repeated exposure: Liver Respiratory System Kidney Central Nervous System

12. ECOLOGICAL INFORMATION

Ecotoxicity:
Fish: No data available
Crustacea: No data available
Algae: No data available

Persistence / degradability: 0% (by BOD) , 4.6% (by GC)
Bioaccumulative potential(BCF): 1.4 - 4.7 (conc. 0.3 mg/L) , 4.1 - 13 (conc. 0.1 ppm)
Mobility in soil
Log Pow: 1.97
Soil adsorption (Koc): No data available
Henry's Law (PaM ³/mol): 371

13. DISPOSAL CONSIDERATIONS

Listed waste U136/Cacodylic acid
Disposal of product: Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local rules and regulations. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.
Disposal of container: Dispose of as unused product. Do not re-use empty containers.
Other considerations: Observe all federal, state and local regulations when disposing of the substance.

14. TRANSPORT INFORMATION

DOT (US)

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN1888	Chloroform	6.1 Toxic material.	III

IATA

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN1888	Chloroform	6.1 Toxic material.	III

IMDG

UN number:	Proper Shipping Name:	Class or Division:	Packing Group:
UN1888	Chloroform	6.1 Toxic material.	III

EmS number: F-A, S-A
Reportable Quantitiy: 10 pounds (4.54 Kilograms)

15. REGULATORY INFORMATION

Toxic Substance Control Act (TSCA 8b.):
This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.

US Federal Regulations

CERCLA Hazardous substance and Reportable Quantity:
- **SARA 313:** Listed
- **SARA 302:** Listed

State Regulations

State Right-to-Know
- **Massachusetts** Listed
- **New Jersey** Listed
- **Pennsylvania** Listed

California Proposition 65: Listed

Other Information

NFPA Rating:
- **Health:** 2
- **Flammability:** 0
- **Instability:** 0

HMIS Classification:
- **Health:** 2
- **Flammability:** 0
- **Physical:** 0

International Inventories

Canada: DSL On DSL
EC-No: 200-663-8

16. OTHER INFORMATION

Revision date: 07/06/2018
Revision number: 1

TCI chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.