

MATERIAL SAFETY DATA SHEET

Product Name: Chloroform

CAS No.: 67-66-3

Version: 01

1. Identification

Product Code : 90013, 90366, 90140, 90367, 91207,98189
Company Name : Advent Chembio Private Limited
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2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
CHLOROFORM	67-66-3	98 - 100%

3. Hazards Identification**Hazard classification****Health hazards**

Acute Toxicity(Oral) : Category 4
Skin corrosion/irritation : Category 2
Serious eye damage/eye irritation : Category 2
Carcinogenicity : Category 2
Toxic to reproduction : Category 2
Specific target organ toxicity - single exposure (Inhalation) : Category 1
Specific target organ toxicity – repeated exposure (Inhalation) : Category 1

Environmental hazards

Acute hazards to the aquatic environment : Category 3
Chronic hazards to the aquatic environment : Category 3

Labels elements**Hazard symbol**

Signal word : Danger
Hazard statement : Harmful if swallowed.
Causes serious eye irritation.
Causes skin irritation.
Causes damage to organs.

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Causes damage to organs through prolonged or repeated exposure.
Suspected of causing cancer.
Suspected of damaging fertility or the unborn child.
Harmful to aquatic life with long lasting effects.

Precautionary statement**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/vapors/spray. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling. Avoid release to the environment.

Response

: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. IF exposed or concerned: Get medical advice/attention. 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/attention. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Storage

: Store at room temperature below 30°C in original packing, keep container tightly closed away from source of ignition, handle at inert atmosphere.

Disposal

Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification

: None.

4. First Aid Measures**General information**

: Get medical advice/attention if you feel unwell. If medical advice is needed, have product container or label at hand. Show this safety data sheet to the doctor in attendance.

Ingestion

: Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell.

Inhalation

: Move to fresh air. Get medical attention if symptoms occur.

Skin contact

: Wash skin thoroughly with soap and water. Get medical attention if symptoms occur. Wash contaminated clothing before reuse.

Eye contact

: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately.

Most important symptoms/effects, acute and delayed

: Harmful if swallowed. Irritating to eyes, respiratory system and skin. Narcotic effect. May cause reproductive effects.

Indication of immediate medical attention and special treatment needed

: Treat symptomatically. Symptoms may be delayed .

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5. Fire Fighting Measures

- General fire hazards** : In case of fire and/or explosion do not breathe fumes .
- Suitable (and unsuitable) extinguishing media**
- Suitable extinguishing media** : Water spray, foam, dry powder or carbon dioxide.
- Unsuitable extinguishing media** : None known.
- Specific hazards arising from the chemical** : Fire may produce irritating, corrosive and/or toxic gases.
- Special protective equipment and precautions for firefighters**
- Special fire fighting procedures** : Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.
- Special protective equipment for fire-fighters** : Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Self-contained breathing apparatus and full protective clothing must be worn in case of fire .

6. Accidental Release Measures

- Personal precautions, protective equipment and emergency procedures** : Keep unauthorized personnel away. Ventilate closed spaces before entering them. Use personal protective equipment. See Section 8 of the MSDS for Personal Protective Equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Methods and material for containment and cleaning up** : Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.
- Notification Procedures** : Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved .
- Environmental precautions** : Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

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7. Handling and Storage

- Precautions for safe handling** : Use personal protective equipment as required. Avoid breathing mists or vapors. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Wash hands thoroughly after handling. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use.
- Conditions for safe storage, including any incompatibilities** : Store at room temperature below 30°C in original packing, keep container tightly closed away from source of ignition, handle at inert atmosphere.

8. Exposure Controls Personal Protection

Control parameters

Occupational exposure limits

Chemical identity	Type	Exposure Limit values	Source
CHLOROFORM	TWA	10 ppm	US. ACGIH Threshold Limit Values (2011)
	STEL	2ppm 9.78 mg/m ³	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	Ceiling	50 ppm 240 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	2ppm 9.78 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)

Appropriate engineering controls : No data available.

Individual protection measures, such as personal protective equipment

- General information** : Good general ventilation (typically 10 air changes per hour) should be used. 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. An eye wash and safety shower must be available in the immediate work area .
- Eye/face protection** : Wear safety glasses with side shields (or goggles) and a face shield.
- Hand protection** : Chemical resistant gloves.
- Other** : Wear suitable protective clothing.
- Respiratory protection** : In case of inadequate ventilation, use air-supplied full-mask.
- Hygiene measures** : Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

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9. Physical and Chemical Properties

Appearance	:	Colorless Liquid.
Odor	:	Ether-like odor
Solubility in water	:	5 g/l (25 °C)
Relative density	:	1.48 (20 °C)
pH	:	No data available
Initial boiling point and boiling range	:	61 °C
Melting point/freezing point:	:	-63.41 °C
Vapor pressure	:	26.3 kPa (25 °C)
Vapor density:	:	4.12 AIR=1
Formula	:	CHCl ₃
Molecular Weight	:	119.38 g/mol

10. Stability and Reactivity

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Material is stable under normal conditions.
Possibility of hazardous reactions	:	Hazardous polymerization does not occur.
Conditions to avoid	:	Heat, sparks, flames. Contact with incompatible materials.
Incompatible materials	:	Strong oxidizing agents. Strong bases. Caustics. Aluminum. Chemically active metals .
Hazardous decomposition products	:	Oxides of Carbon. Hydrogen Chloride. Chlorine .

11. Toxicological Information**Information on likely routes of exposure**

Ingestion	:	Harmful if swallowed. Irritating. May cause nausea, stomach pain and vomiting.
Inhalation	:	Harmful if inhaled. May cause central nervous system effects.
Skin contact	:	Causes skin irritation .
Eye contact	:	Causes serious eye irritation .

Information on toxicological effects**Acute toxicity (list all possible routes of exposure)**

Oral Product	:	LD 50 (Rabbit): 9,827 mg/kg LD 50 (Mouse): 118 mg/kg LD 50 (Rat): 444 mg/kg
Dermal Product	:	No data available.
Inhalation Product	:	LC 50 (Rat, 4 h): 47.702 mg/l .
Repeated dose toxicity Product	:	No data available.
Skin corrosion/irritation Product	:	Causes irritation

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- Serious eye damage/eye irritation Product** : Causes serious eye irritation.
- Respiratory or skin sensitization Product** : Not a skin sensitizer.
- Carcinogenicity Product** : Suspected of causing cancer .
- IARC Monographs on the Evaluation of Carcinogenic Risks to Humans CHLOROFORM** : Overall evaluation: 2B. Possibly carcinogenic to humans.
- US. National Toxicology Program (NTP) Report on Carcinogens CHLOROFORM** : Reasonably Anticipated to be a Human Carcinogen.
- US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050** : No carcinogenic components identified.
- Germ cell mutagenicity In vitro Product** : No mutagenic components identified.
- In vivo Product** : No mutagenic components identified.
- Reproductive toxicity Product** : Suspected of damaging fertility or the unborn child.

- Specific target organ toxicity - single exposure Product** : Central nervous system.
- Specific target organ toxicity - repeated exposure Product** : Liver. Kidneys.
- Aspiration hazard Product** : Not classified.
- Other effects** : None known.

12. Ecological Information

Ecotoxicity

Acute hazards to the aquatic environment :

- Fish Product** : No data available.
- Specified substance(s): CHLOROFORM** : LC 50 (Fathead minnow (Pimephales promelas), 96 h): 62.81 - 79.61 mg/l Mortality .
LC 50 (Bluegill (Lepomis macrochirus), 96 h): 18.3 mg/l Mortality .
- Specified substance(s): CHLOROFORM** : EC 50 (Brine shrimp (Artemia salina), 24 h): 28.6 - 33.8 mg/l Intoxication
EC 50 (Water flea (Daphnia magna), 24 h): 79 mg/l Intoxication
LC 50 (Water flea (Daphnia magna), 216 h): 200 - 512 mg/l Mortality
LC 50 (Water flea (Daphnia magna), 48 h): 19 - 47 mg/l Mortality
- Aquatic invertebrates Product** : No data available.

Chronic hazards to the aquatic environment :

- Fish Product** : No data available.
- Aquatic invertebrates Product** : No data available.
- Toxicity to Aquatic Plants Product:** : No data available.
- Persistence and degradability**

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Biodegradation Product	:	The product is not readily biodegradable.
BOD/COD ratio Product	:	No data available.
Bioaccumulative potential	:	
Bioconcentration factor (BCF) Product	:	No data available on bioaccumulation.
Partition coefficient n-octanol / water (log Kow) Product	:	Log Kow: 1.97
Mobility in soil	:	No data available .
Other adverse effects	:	Harmful to aquatic life with long lasting effects.

13. Disposal consideration

Disposal instructions	:	Discharge, treatment, or disposal may be subject to national, state, or local laws.
Contaminated packaging	:	Since emptied containers retain product residue, follow label warnings even after container is emptied .

14. Transport Information

	UN No.	UN proper shipping name	Hazard Class(es)	Packaging group	Marine Pollutant
DOT	UN 1888	Chloroform	6.1	III	No
IMDG	UN 1888	Chloroform	6.1	III	No
IATA	UN 1888	Chloroform	6.1	III	No

15. Regulatory Information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

Safety, health and environmental regulations/legislation specific for the substance or mixture
No Data Available.

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16. Other Information***NFPA Hazard ID***

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

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