



MATERIALS SAFETY DATA SHEET (MSDS) Chloroform (CHCl₃)	MSDS Number:	
	Version number:	
	Date issued:	
	Page No:	

1. Product Identification

Product Name	Chloroform
Chemical name	trichloromethane; chloroform
CAS No	67-66-3
Use of Substance/Mixture	the Laboratory chemicals

Manufacturer/Importer/Supplier/Distributor information

Manufacturer Supplier	
E-Mail	
Contact Person	
Emergency Telephone	

2. Hazard(s) identification

GHS classification

Classification of the substance or mixture

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Vapors)	Category 3
Skin corrosion/irritation	Category 2



Serious eye damage/eye irritation	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 2
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure) Category 1 respiratory system, cardiovascular system, liver, kidneys Category 3 Narcotic effects	Category 1, Category 3
Specific target organ toxicity (repeated exposure) Category 1 central nervous system, respiratory system, liver, kidneys	Category 1
Acute aquatic toxicity	Category 3
Chronic aquatic toxicity	Category 1

Pictograms

Signal word	Danger
Hazard statements	<p>H315 - Causes skin irritation H318 - Causes serious eye damage H302 - Harmful if swallowed H331 - Toxic if inhaled H341 - Suspected of causing genetic defects H351 - Suspected of causing cancer H361 - Suspected of damaging fertility or the unborn child H336 - May cause drowsiness or dizziness H410 - Very toxic to aquatic life with long lasting effects H402 - Harmful to aquatic life H370 - Causes damage to the following organs: respiratory system, cardiovascular system, liver, kidneys</p>



	H372 - Causes damage to the following organs through prolonged or repeated exposure: central nervous system, respiratory system, liver, kidneys.
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not breathe dust/fume/gas/mist/vapors/spray. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment.
Response	<p>IF exposed: Call a POISON CENTER or doctor/physician</p> <p>IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue Rinsing Immediately call a POISON CENTER or doctor/physician.</p> <p>IF ON SKIN: Wash with plenty of soap and water, If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse</p> <p>Call a POISON CENTER or doctor/physician.</p> <p>IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing</p> <p>IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. Collect spillage</p>
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container to an approved waste disposal plant
Other hazards	Not available

3. Composition and ingredient information

Chemical name	CAS number	%
Chloroform	67-66-3	99.9

4. First-aid measures

General advice	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
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Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Skin contact	Wash off immediately with soap and plenty of water for at least for 15 minutes. Take off contaminated clothing and wash before reuse. Seek immediate medical attention/advice.
Ingestion	Do NOT induce vomiting. Call a physician or poison control centre immediately.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

5. Fire-fighting measures

Extinguishing media	<p>Suitable extinguishing media: Water spray, Alcohol resistant foam, BC-powder, Carbon dioxide (CO₂)</p> <p>Unsuitable extinguishing media: Water jet</p>
Special hazards arising from the substance or mixture	<p>Hazardous combustion products: Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen chloride (HCl)</p>
Advice for firefighters	In case of fire and/or explosion do not breathe fumes. Coordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8. Avoid contact with skin and eyes and inhalation of vapours. Use personal protective equipment. In case of insufficient ventilation, wear suitable respiratory equipment. In case of leak, wear a self contained breathing apparatus.
Environmental Precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
Methods and materials for containment and cleaning up	Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.



7. Handling and storage

Precautions for safe handling	<p>Advice on safe handling: Wear personal protective equipment. Use only with adequate ventilation.</p> <p>Advice on protection against fire and explosion: Normal measures for preventive fire protection.</p> <p>Hygiene measures: Keep working clothes separately. Take off all contaminated clothing immediately. Avoid contact with skin, eyes and clothing. Wash hands before breaks and at the end of workday.</p>
Conditions for safe storage, including any incompatibilities	<p>Requirements for storage areas and containers: Keep only in the original container, tightly closed, in a well ventilated place. Store at room temperature. (Ambient temperature: > 0 < 35°C) Protect from atmospheric moisture and water.</p>
Specific end use(s)	No additional data available

8. Exposure Controls/ Personal Protection

Control parameters Exposure limits

Ingredient name	Exposure limits
Chloroform	<p>ACGIH</p> <p>TWA: 10 ppm</p>

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Exposure Controls

Appropriate Engineering Control	Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.
Personal protective equipment	
Eye protection	Use tightly sealed safety glasses. (European Standard - EN 166)
Skin protection	Impervious long-sleeved clothing. Preventative skin protection is recommended



Hand protection			Protective gloves:	
Glove Material	Breakthrough time	Glove thickness	EU Standard	Glove comments
Viton (R)	> 480 mins	-	Level 6 EN 374	As tested under EN374-3 Determination of Resistance to Permeation by Chemicals
Neoprene	< 25 mins	0.45 mm		
Butyl rubber	< 15 mins	0.35 mm		
			<p>Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitization effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.</p>	
Respiratory protection			<p>When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.</p>	
Large Scale/emergency use			<p>Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced Recommended Filter type: low boiling organic solvent Type AX Brown conforming to EN371</p>	
Small scale/Laboratory use			<p>Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN141 When RPE is used a face piece Fit Test should be conducted.</p>	
Environmental exposure controls			<p>Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.</p>	

9. Physical and chemical properties



Appearance	Clear colourless liquid
Odor	Mildly sweet
Odor Threshold	205-307 ppm
pH	Not applicable
Melting/Freezing Point	-63.41°C
Initial Boiling Point and Range	59.4°C
Flash Point	Not flammable
Evaporation Rate	(Ether = 1):0.56
Flammability	Not flammable
Explosive Properties	None
Explosive Limits	Not applicable
Vapor Pressure	(mm Hg @ 20 C) 167
Vapor Density	(Air = 1) 4.12
Relative Density	(H2O = 1): 1.48 @ 25°C
Solubility	1.8 g/100 g water @ 25°C
Initial Boiling Point	Initial Boiling Point
Partition Coefficient: n-octanol/water:	1.97
Auto-Ignition Temperature	Not applicable
Decomposition Temperature	Not determined
Viscosity	Not determined
Oxidizing Properties	None

10. Stability and reactivity

Reactivity	Will not polymerize.
Chemical stability	Stable.
Possibility of hazardous reactions	Reacts with strong oxidizers forming phosgene and chlorine gas. Reacts explosively in contact with powdered metals.
Conditions to avoid	Avoid contact with open flame, electric arcs, or other hot surfaces which can cause thermal decomposition.



Incompatible materials	Strong alkalis, oxidizers, alkali metals, metallic powder, acetone, aluminium, and magnesium.
Hazardous decomposition products	Produces hydrogen chloride, phosgene, and chlorine when heated to decomposition

11. Toxicological information

Information on Toxicological Effects

Acute toxicity

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Chloroform(CAS: 67-66-3)	908 mg/kg	>3980 mg/kg	LOAEL = 59 mg/M3

Source: ECHA

Local effect

Inhalation	Toxic if inhaled
Eye contact	Causes serious eye irritation
Skin contact	Causes skin irritation
Ingestion	Harmful If swallowed

Chronic toxicity

Skin Corrosion/Irritation	Causes skin irritation
Eye damage/irritation	Causes serious eye irritation
Sensitization	Based on available information, the classification criteria are not met.
Mutagenic effects	Based on available information, the classification criteria are not met.
Carcinogenic effects	Suspected of causing cancer
Reproductive effects	Suspected of damaging the unborn child
STOT - Single Exposure	May cause respiratory irritation



STOT - repeated exposure	Causes damage to organs through prolonged or repeated exposure. - Liver, Kidney
Aspiration hazard	Not classifiable

12. Ecological information

Ecotoxicity

Chemical Name	Toxicity to Fish	Toxicity to Daphnia and other aquatic invertebrate	Toxicity to Algae
Chloroform (CAS: 67-66-3)	LC50: 28mg/l	EC50(48hr) : 152 mg/L	EC50(72hr) : 13.3 mg/L

Source: ECHA

Persistence and Degradability	Biodegradability: Result: Not readily biodegradable.
Bio accumulative Potential	Bioconcentration factor (BCF): 13 Chloroform does not have significant bio accumulative potential
Mobility in Soil	Product contains volatile organic compounds (VOC) which will evaporate easily from all the surfaces. Will likely be mobile in environment due to its mobility.
Results of PBT and vPvB Assessment	This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or verypersistent and very bio accumulative (vPvB) at levels of 0.1% or higher.
Other adverse effects	Do not flush into surface water or sanitary sewer system.

13. Disposal considerations

Waste treatment methods	<u>Sewage disposal-relevant information:</u> Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets. Waste treatment of containers/packaging. It is a dangerous waste; only packaging which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.
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Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

14. Transport information

ADR/RID	
UN number	UN1888
Proper shipping name	Chloroform
UN classification	6.1
Subsidiary hazard class Packing group	III
Marine pollutant	Yes

IMDG	
UN number	UN1888
Proper shipping name	Chloroform
UN classification	6.1
Subsidiary hazard class Packing group	III
Marine pollutant (Sea)	Yes
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

IATA	
UN number	UN1888
Proper shipping name	Chloroform
UN classification	6.1
Subsidiary hazard class Packing group	III
Environmentally Hazardous Substance	Yes



15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Basis	Value	Remarks
Regulation (EC) No. 1907/2006, Annex XVII		This product contains an ingredient according to Annex XVII of the REACH Regulation 1907/2006/EC.
Directive 2012/18/EC Listed in Regulation : H2: ACUTE TOXIC	Quantity: 50.000 kg Quantity: 200.000 kg	
Substances of very high concern (SVHC)		This product does not contain substances of very high concern according to Regulation (EC) No Article 57 above the respective regulatory 1907/2006 (REACH), concentration limit of $\geq 0.1\%$ (w/w).

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

16. Any other information

History

Product name	Entity 1 Made by India
Product code	
Date of printing	
Date of issue/Date of Revision	
Date of previous issue	
Version	
Prepared by	

17. Change Details