

Section 1. Product and Company Identification

Product Name Chloroform
CAS Number 67-66-3

Parchem - fine & specialty chemicals

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EMERGENCY RESPONSE NUMBER
CHEMTEL

Toll Free US & Canada: 1 (800) 255-3924

All other Origins: 1 (813) 248-0585

Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture

Hazard/Danger Classification (Regulation EC) No. 1272/2008 [CLP]

Health

Carcinogenicity Category 2

Acute Toxicity Category 4 (oral)

Skin Irritation Category 2

Specific Target Organ Toxicity - Repeat

Exposure Category 2

Environmental

None

Physical

None

EU Classification (67/548/EEC as amended): Harmful (Xn) Irritant (Xi) Carcinogen Category 3

EU Risk (R) and Safety (S) Phrases: R22, R38, R40, R48/20/22, S2, S36/37

GHS Label Elements

Pictograms:



Signal word: WARNING

Hazard and precautionary statements

Hazard Statements

H302 Harmful if swallowed.



- H315 Causes skin irritation.
- H351 Suspected of causing cancer
- H373 May cause damage to liver and kidneys through prolonged or repeated exposure

Precautionary Statements

- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe vapors.
- P264 Wash exposed skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P308 + P313 IF exposed or concerned: Get medical advice/attention.
- P301+ P312 IF SWALLOWED: Call a POISON Center or doctor if you feel unwell.
- P330 Rinse mouth.
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
- P332 + P313 If skin irritation occurs: Get medical advice.
- P362 Take off contaminated clothing and wash before reuse.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local and national regulations.

Section 3. Composition / Information on Ingredients

Common Name Chloroform
Synonym(s) Trichloromethane
CAS Number 67-66-3

COMPONENT	CAS NUMBER	CONCENTRATION
Chloroform	67-66-3	100%

Section 4. First Aid Measures

First-Aid Instructions

Eye Contact: Immediately flush victim's eyes with large quantities of water for at least 15 minutes, holding the eyelids apart. Get medical attention if irritation persists.

Skin Contact: Wash exposed area thoroughly with large quantities of water for at least 15 minutes. Remove and launder clothing before re-use. Get medical attention if irritation persists.

Inhalation: Remove to fresh air. If irritation or other symptoms persist, seek medical attention. If breathing has stopped, administer artificial respiration. Get immediate medical attention.

Ingestion: Do not induce vomiting. If conscious and alert, have victim rinse mouth with water. Never give anything by mouth to an unconscious or drowsy person. Get immediate medical attention.

Most important symptoms of exposure: Dizziness, vertigo, headache, tiredness, nausea, vomiting. Prolonged exposure may cause unconsciousness or death. Ingestion will cause severe burning of mouth and throat, pain in chest and abdomen and vomiting.

Other: Drinking alcohol or taking phenobarbital can increase toxic effects.



Note to Physicians (Treatment, Testing, and Monitoring): Treatment of overexposure should be directed at the control of symptoms and clinical conditions.

Section 5. Firefighting Measures

Suitable Extinguishing Media: Use media appropriate for surrounding fire.

Fire Fighting Procedures: Cool fire exposed containers and structures with water. Approach fire from upwind to avoid hazardous vapors, and toxic decomposition products.

Specific Hazards Arising from the chemical: Not flammable, however, thermal decomposition products are toxic and corrosive and include hydrogen chloride, phosgene, and chlorine.

Precautions for Fire Fighters: Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing.

Section 6. Accidental Release Measures

Personal Precautions, PPE and Emergency Procedures: Evacuate unprotected people and ventilate the area. If spill occurs indoors, turn off air conditioning and/or heat systems to prevent vapors from contaminating entire building. Wear appropriate protective clothing as described in Section 8.

Environmental Precautions: Prevent spill from entering sewers and water courses. Report releases as required by local and federal authorities.

Methods and Materials for Containment and Clean-up: Clean up material by absorbing with an inert absorbent material. Place in closed containers for appropriate disposal.

Section 7. Handling and Storage

Precautions for Safe Handling: Avoid breathing vapors. Avoid contact with the eyes, skin and clothing. Any clothing or shoes contaminated should be removed immediately, and thoroughly laundered before reuse. Wear protective clothing and equipment as described in Section 8. Use only with adequate ventilation. Wash thoroughly with soap and water after handling. Keep containers tightly closed when not in use.

Conditions for Safe Storage: Keep containers tightly closed when not in use. Store in a dry area. Keep water and moist air from entering containers. Protect from physical damage.

Section 8. Exposure Controls / Personal Protection

Occupational Exposure Limits

United States: 10 ppm TWA ACGIH TLV;

United States: 50 ppm Ceiling OSHA PEL

Germany: 0.5 ppm TWA skin DFG MAK

United Kingdom: 2 ppm TWA skin UK OEL

France: 2 ppm INRS VME, 50 ppm VLCT skin

Spain: 2 ppm TWA VLA-ED skin

Italy: 2 ppm TWA skin



European Union: 2 ppm TWA skin EU IOEL

Biological Exposure Limits: None Established

Appropriate Engineering Controls: Use with adequate general or local exhaust ventilation to maintain exposure levels below the occupational exposure limits. Do not use in closed or confined areas.

Individual Protection Measures (PPE)

Specific Eye/face Protection: Chemical goggles recommended.

Specific Skin Protection: Wear impervious gloves. Wear impervious protective clothing if needed to avoid skin contact and contamination of personal clothing. **Recommended glove:** Polyvinyl alcohol or viton. Consult glove supplier for thickness and breakthrough times.

Specific Respiratory Protection: In operations where vapor concentrations exceed the exposure limits an approved respirator should be worn. Selection and use of respiratory equipment must be in accordance with applicable regulations and good industrial hygiene practice.

Specific Thermal Hazards: Not applicable

Environmental Exposure Controls: None required for normal use.

General Hygiene Considerations and Work Practices: Wash thoroughly with soap and water after handling. Any clothing or shoes contaminated should be removed immediately and thoroughly laundered before reuse.

Protective Measures during Repair and Maintenance of Contaminated Equipment:
Not applicable for product.

Section 9. Physical and Chemical Properties

Appearance: Clear, colorless liquid

Explosive limits: Not applicable

Odor: Mildly sweet

Vapor pressure (20°C): 167 mmHg

Odor threshold: 205 - 307 ppm

Vapor density: (Air = 1) 4.12

pH: Not applicable

Relative density (H₂O = 1): 1.48 @ 25°C

Melting/freezing point: -63.41°C

Solubility: 1.8 g/100 g water @ 25°C

Initial boiling point and range: 59.4°C

Partition coefficient (n-Octanol/water): 1.97

Flash point: Not flammable

Auto-ignition Temperature: Not applicable

Evaporation rate (Ether = 1): 0.56

Decomposition Temperature: Not determined

Flammability: Not flammable



Viscosity: Not determined
Explosive Properties: None
Oxidizing Properties: None

Section 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, aluminum, and magnesium.
Hazardous Decomposition Products: Produces hydrogen chloride, phosgene, and chlorine when heated to decomposition

Section 11. Toxicological Information

Potential Health Effects

Eyes: Liquid in the eyes can cause loss of cornea epithelium. Regeneration of cornea cells is prompt and returns to normal in 1 to 3 days. Vapors can cause pain and irritation.

Skin: Prolonged or repeated skin contact can cause irritation, defatting of skin, and dermatitis. Absorption of liquid through intact skin is possible and may cause systemic poisoning if contact with skin is prolonged.

Ingestion: Ingestion is followed by severe burning of mouth and throat, pain in chest and abdomen, and vomiting. Depending on the amount swallowed, loss of consciousness, liver injury, and death can occur. If vomiting occurs, chloroform can be aspirated into the lungs which can cause chemical pneumonia and systemic effects.

Inhalation: Inhalation may cause depression of the central nervous system with dizziness, vertigo, headache, tiredness, nausea. Prolonged exposure may cause unconsciousness or death.

Chronic Health Effects: Prolonged or repeated skin contact can cause irritation, defatting of skin, and dermatitis. Chronic overexposure to chloroform has caused liver and kidney toxicity in experimental animals.

Carcinogenicity: Chloroform is classified by IARC as a 2B animal carcinogen. NTP has classified chloroform as reasonably anticipated to be a carcinogen. Chloroform has been found to cause liver tumors in male and female mice and liver and kidney tumors in rats.

Mutagenicity: Largely negative results have been obtained in Salmonella typhimurium and Escherichia coli (with and without activation), in gene mutation tests in CHO cells and human lymphocytes, in mouse micronucleus tests, and in tests of unscheduled DNA synthesis both in-vitro and in-vivo. Given the large number of sensitive assays that have been used to investigate the genotoxicity of chloroform, the committee considered it noteworthy that the positive responses were so few, and that the positive results were randomly distributed among the various assays. Taken together, WHO concluded that the weight of evidence indicates that neither chloroform nor its



metabolites appear to interact directly with DNA or possess genotoxic activity.

Medical Conditions Aggravated by Exposure: Alcohol may enhance the toxic effects. History of alcoholism, kidney disorders, liver disorders, or nervous system disorders.

Acute Toxicity Data

Oral - rat LD50: 908 - 2,180 mg/kg

Inhalation - rat LC50: 47.702 mg/L/4 hr

Reproductive Toxicity Data: Embryotoxic and fetal toxic, and has delayed fetal development in experimental animals. Studies in mice and rats have shown a marginal teratogenic (birth defects) effect. Studies in rabbits have not shown teratogenic effects.

Specific Target Organ Toxicity (STOT)

Single Exposure: Acute chloroform exposure may result in death by respiratory arrest. Primary toxic response at lower levels of exposure is hepatotoxicity leading to fatty liver and centrilobular necrosis.

Repeated Exposure: Chronic overexposure to chloroform has caused liver and kidney toxicity in experimental animals

Section 12. Ecological Information

Toxicity

LC50 - Daphnia magna (Water flea): 29,000 µg/L for 48 hr.

LC50 - Species: Lepomis macrochirus: 13,300 µg/L for 96 hr.

Persistence and Degradability: Chloroform in water and soil is expected to evaporate rapidly to the atmosphere due to its high vapor pressure. Biodegradation can occur when proper microbial populations exist. Chloroform in the atmosphere will degrade by reaction with hydroxyl radicals with a half-life of 80 days.

Bioaccumulative Potential: This material is not expected to bioaccumulate.

Mobility in Soil: Poorly absorbed in soil. Can leach into ground water.

Other Adverse Effects: None known

Results of PBT/vPvB Assessment: Not required

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

ADR/RID, IMDG, IATA, DOT

UN Number: UN1888

Proper Shipping Name: Chloroform



Hazard Class: 6.1
Packing Group: PG III

Environmental Hazards: No
Special Precautions for User: Not applicable

Note: In the United States packages with inner packaging with 4 L or less may be re-classed and shipped as Consumer Commodity, ORM-D. Packages containing 10 lbs or more are subject to RQ provisions.

Section 15. Regulatory Information

US Federal Regulations

Comprehensive Environmental Response and Liability Act of 1980 (CERCLA): This product has an RQ of 10 lbs. Many other states have more stringent regulations. Report all spills in accordance with local, state, and federal regulations.

Toxic Substances Control Act (TSCA): All of the ingredients in this product are listed on the EPA TSCA Inventory.

OSHA Hazard Classification: Irritant, Carcinogen, Target Organ Effects

Clean Water Act (CWA): Chloroform is regulated.

Clean Air Act (CAA): Chloroform is regulated

Superfund Amendments and Reauthorization Act (SARA) Title III Information

SARA Section 311/312 (40 CFR 370) Hazard Categories

Immediate Hazard: Yes

Pressure Hazard: No

Delayed Hazard: Yes

Reactivity Hazard: No

Fire Hazard: No

This product contains the following toxic chemical(s) subject to reporting requirements of SARA Section 313 (40 CFR 372)

Components: Chloroform

CAS#: 67-66-3

Percentage: 100%

State Regulations

California: This product contains the following chemical(s) known to the State of California to cause cancer, birth defects or reproductive harm:

Components: Chloroform

CAS#: 67-66-3

Percentage: 100%



International Regulations

Canadian Environmental Protection Act: All the components of this product are listed on the Canadian DSL.

Canadian Workplace Hazardous Materials Information System (WHMIS): Class D-1-B, Class D-2-A

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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