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1. Chemical Product

**Product Name:** Chloroform  
**Chemical name:** Chloroform  
**Synonyms:** Trichloromethane; Methane, trichlor-  
**Chemical Formula:** CHCl₃

2. Composition and Information on Ingredients

**Composition:** Chloroform 100% by weight.  

**Toxicological Data on Ingredients:** Chloroform: ORAL (LD50): Acute: 695 mg/kg [Rat]. 36 mg/kg [Mouse]. 820 mg/kg. [Guinea pig]. DERMAL (LD50): Acute: >20000 mg/kg [Rabbit]. VAPOR (LC50): Acute: 47702 mg/m³ in 4 hours [Rat].

3. Hazards Identification

**Potential Acute Health Effects:**  
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion and inhalation.  
Slightly hazardous in case of skin contact (permeator).  

**Potential Chronic Health Effects:**  
**CARCINOGENIC EFFECTS:** Classified + (Proven) by NIOSH. Classified A3 (Proven for animal) by ACGIH, 2B (Possible for human) by IARC. Classified 2 (some evidence) by NTP.  
**MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.  
**TERATOGENIC EFFECTS:** Not applicable  
**DEVELOPMENTAL TOXICITY:** The substance may be toxic to kidneys, liver and heart. Repeated or prolonged exposure to the substance can produce target organs damage.
4. First Aid Measures

**General measures:** Get medical attention. Show this data sheet to a physician in attendance.

**Skin contact:** In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Serious skin contact:** Immediately wash with a disinfectant soap and cover the contaminated skin with an antibacterial cream. Consult a physician.

**Eye contact:** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

**Ingestion:** Do not induce vomiting unless directed to by a medical professional. Never give anything by mouth to an unconscious person. Loosen tight clothing such as collar, tie, belt or waistband. If large quantities of this material are swallowed, call a physician immediately.

**Serious ingestion:** Not applicable

**Inhalation:** Person should be removed to fresh air. If the person is not breathing, give artificial respiration. If person’s breathing is difficult, give oxygen. Consult a physician.

**Serious inhalation:** Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

5. Fire and Explosion Data

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not applicable.

**Flash points:** Not applicable.

**Flammable limits:** Not applicable.
### CHLOROFORM

**Products of Combustion:** Not applicable.

**Fire Hazards in Presence of Various Substances:** Not applicable.

**Explosion Hazards in Presence of Various Substances:**
- Risks of explosion of the product in presence of mechanical impact: Not applicable
- Risks of explosion of the product in presence of static discharge: Not applicable

**Fire fighting media and Instructions:** Not applicable.

**Special Remarks on Fire Hazards:** Not applicable.

**Special Remarks on Explosion Hazards:** May explode if it comes in contact with aluminum powder, lithium, perchlorate, pentoxide, bis(dimethylamino)dimethylstannane, potassium, potassium-sodium alloy, sodium (or sodium hydroxide or sodium methoxide), and methanol

### 6. Accidental Release Measures

**NB:** Wear appropriate protective equipment/clothing including gloves before removing any spills.

**Small spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

**Large spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV (threshold limit value). Check TLV on the MSDS and with local authorities.

### 7. Handling and Storage

**Precautions:** Do not ingest. Do not breathe gas, fumes, vapour or spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as metals and alkalis.

**Storage:** Keep container tightly closed in a cool, well-ventilated area. Sensitive to light; store in light-resistant containers.
8. Exposure Controls/Personal Protection

**Airborne Exposure Limits:**
- TWA: 2 (ppm) Inhalation
- TWA: 9.9 (mg/m³) Inhalation.

**Engineering Controls:** Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective threshold limit value. Ensure that eyewash stations are proximal to the workstation location.

**Personal Protection:** Splash goggles, lab coat, gloves and vapour respirator. Be sure to use an approved/certified respirator or equivalent.

**Personal Protection in Case of a Large Spill:** Splash goggles, full suit, vapour respirator, boots, gloves should be worn. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

9. Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Pleasant, sweetish, etheric and non-irritating

**Taste:** Burning and sweet.

**Molecular Weight:** 119.38 g/mole

**Color:** Colourless, clear

**pH (1% soln/water):** Not available

**Boiling Point:** 61°C (141.8°F)

**Melting Point:** -63.5°C (-82.3°F)

**Critical Temperature:** 263.33°C (506°F)

**Specific Gravity:** 1.484 (Water = 1)

**Vapor Pressure:** 21.1 kPa (@ 20°C)
Vapor Density: 4.36 (Air = 1)

Volatility: Not available.

Odor Threshold: 85 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 2

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Very slightly soluble in cold water.

Volatility: Not applicable

Odour Threshold: Not applicable

Water/Oil Distribution Coefficient: Not applicable

Ionicity (in Water): Not applicable

Dispersion Properties: See solubility in water and methanol.

Solubility: Soluble in hot water and methanol. Partially soluble in cold water (1 gram boric acid is soluble in 18mL cold water). Slightly soluble in acetone.

10. Stability and Reactivity Data

Stability: The product is stable.

Corrosivity: Non-corrosive in presence of glass.

Instability temperature: Not applicable

Conditions of Instability: Incompatible materials, light.

Incompatibles: Reactive with metals, alkalis.

Polymerization: Will not occur.
11. Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation

Toxicity to animals: WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 36 mg/kg [Mouse]. Acute dermal toxicity (LD50): >20000 mg/kg [Rabbit]. Acute toxicity of the vapour (LC50): 47702 mg/m³ 4 hours [Rat].

Effects on humans:

ACUTE POTENTIAL HEALTH EFFECTS: Substance is hazardous causing irritation in case of skin or eye contact, indigestion or inhalation. Slightly hazardous in case of skin contact (permeator).

CHRONIC POTENTIAL HEALTH EFFECTS:

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the kidneys, liver and heart.

DEVELOPMENTAL TOXICITY: May affect genetic material (possible mutagen) and cause adverse reproductive effects (embryo toxicity and fetotoxicity). Suspected carcinogen (tumorigenic) and teratogen based on animal data. Human: passes the placental barrier, detected in maternal milk.

Other information: Acute Potential Health Effects:

Skin: Causes skin irritation and may cause chemical burns.

Eye: Causes eye irritation, burning pain and reversible injury to corneal epithelium.

Inhalation: Causes irritation of the respiratory system (mucous membranes). May affect behaviour/Nervous system (CNS depressant, fatigue, dizziness, nervousness, giddiness, euphoria, loss of coordination and judgement, weakness, hallucinations, muscle contraction/spasticity, general anaesthetic, spastic paralysis, headache), anorexia (neurological and gastrointestinal symptoms resembling chronic alcoholism), and possibly coma and death. May affect the liver, kidneys and gastrointestinal tract (nausea, vomiting).

Ingestion: Causes gastrointestinal tract irritation (nausea, vomiting). May affect the liver, urinary system (kidneys), respiration, behaviour/nervous system (symptoms similar to inhalation), and heart.
**Chronic Potential Health Effects:**

*Inhalation:* Prolonged or repeated inhalation may affect the liver (hepatitis, jaundice, hepatocellular necrosis), metabolism (weight loss), respiration (fibrosis, pneumoconiosis), behaviour/central nervous system (symptoms similar to acute inhalation), blood, musculoskeletal system, and kidneys. *Ingestion:* Prolonged or repeated ingestion may affect the liver, kidneys, metabolism (weight loss), endocrine system (spleen), blood (changes in cell count).

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**12. Ecological Information**

**Ecotoxicity:** Ecotoxicity in water (LC50): 43.8 mg/l 96 hours [Trout].

**Products of Biodegradation:** Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are as toxic as the product itself.

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**13. Disposal Considerations**

**Waste Disposal:** Observe all local regulations regarding disposal. Avoid unauthorised disposal.

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**14. Other Information**

Not applicable
15. References


16. Appendices

Not applicable

17. Revision History

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