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Personal Protection	

Material Safety Data Sheet

Phenol-Chloroform-Isoamyl Alcohol,25:24:1 MSDS

Section 1: Chemical Product and Company Identification

Product Name: Phenol-Chloroform-Isoamyl Alcohol,25:24:1

Catalog Codes: SLP3802

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Phenol; Chloroform; Tromethamine; Isoamyl alcohol

CI#: Not applicable.

Synonym:

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Phenol	108-95-2	45-55
Chloroform	67-66-3	40-50
Tromethamine	77-86-1	<1
Isoamyl alcohol	123-51-3	<5

Toxicological Data on Ingredients: Phenol: ORAL (LD50): Acute: 317 mg/kg [Rat]. 270 mg/kg [Mouse]. DERMAL (LD50): Acute: 630 mg/kg [Rabbit]. 669 mg/kg [Rat]. 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/m 4 hours [Rat]. Tromethamine: ORAL (LD50): Acute: 5900 mg/kg [Rat]. Isoamyl alcohol: ORAL (LD50): Acute: 1300 mg/kg [Rat.]. DERMAL (LD50): Acute: 3212 mg/kg [Rabbit.].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (permeator). Slightly hazardous in case of skin contact (corrosive), of eye contact (corrosive). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce

burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:

Slightly hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation. CARCINOGENIC EFFECTS: Classified A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC [Phenol]. Classified + (Proven.) by NIOSH [Chloroform]. Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC [Chloroform]. Classified 2 (Some evidence.) by NTP [Chloroform]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Phenol]. Mutagenic for bacteria and/or yeast. [Phenol]. Mutagenic for mammalian somatic cells. [Chloroform]. Mutagenic for bacteria and/or yeast. [Chloroform]. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, heart, skin, eyes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention immediately.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

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 immediate medical attention.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: COMBUSTIBLE.

Auto-Ignition Temperature: The lowest known value is 350°C (662°F) (Isoamyl alcohol).

Flash Points:

The lowest known value is CLOSED CUP: 42.78°C (109°F). OPEN CUP: 45.6°C (114.1°F). (Cleveland). (Isoamyl alcohol) CLOSED CUP: 79°C (174.2°F). OPEN CUP: 85°C (185°F)(Phenol) Chloroform is non-flammable

Flammable Limits: The greatest known range is LOWER: 1.2% UPPER: 9% (Isoamyl alcohol)

Products of Combustion: These products are carbon oxides (CO, CO₂), nitrogen oxides (NO, NO₂...), halogenated compounds.

Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks, of oxidizing materials, of reducing materials, of combustible materials, of organic materials, of metals, of acids, of alkalis, of moisture.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of static discharge: Not available. Non-explosive in presence of shocks.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: COMBUSTIBLE.**Special Remarks on Explosion Hazards:**

Phenol + sodium nitrite causes explosion on heating. Peroxydisulfuric acid + phenol causes explosion. (Phenol)

Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:

Flammable liquid. Corrosive liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. 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 oxidizing agents, metals, acids, alkalis.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. 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.

Exposure Limits:

Phenol TWA: 5 (ppm) from ACGIH (TLV) [United States] SKIN TWA: 19 (mg/m³) from ACGIH (TLV) [United States] SKIN TWA: 5 from NIOSH [United States] TWA: 19 (mg/m³) from NIOSH [United States] TWA: 5 (ppm) from OSHA (PEL) [United States] TWA: 19 (mg/m³) from OSHA (PEL) [United States] TWA: 5 (ppm) [Canada] TWA: 19 (mg/m³) [Canada] Chloroform

TWA: 10 (ppm) [Australia] Inhalation TWA: 2 (ppm) from OSHA (PEL) [United States] Inhalation STEL: 9.78 (mg/m3) from NIOSH Inhalation STEL: 2 (ppm) from NIOSH Inhalation

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Unpleasant.

Taste: Not available.

Molecular Weight: Not applicable.

Color: Not available.

pH (1% soln/water): Not Available

Boiling Point: The lowest known value is 61°C (141.8°F) (Chloroform). Weighted average: 68.04°C (154.5°F)

Melting Point: May start to solidify at -63.5°C (-82.3°F) based on data for: Chloroform. Weighted average: -68.82°C (-91.9°F)

Critical Temperature: The lowest known value is 263.33°C (506°F) (Chloroform).

Specific Gravity: Weighted average: 1.19 (Water = 1)

Vapor Pressure: The highest known value is 21.1 kPa (@ 20°C) (Chloroform). Weighted average: 19.04 kPa (@ 20°C)

Vapor Density: The highest known value is 4.36 (Air = 1) (Chloroform). Weighted average: 4.23 (Air = 1)

Volatility: Not available.

Odor Threshold: The highest known value is 85 ppm (Chloroform)

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, acetone.

Solubility:

Easily soluble in methanol, diethyl ether. Soluble in cold water, hot water, acetone.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatible materials

Incompatibility with various substances:

Reactive with oxidizing agents, metals, acids, alkalis. Slightly reactive to reactive with reducing agents.

Corrosivity: Not Available

Special Remarks on Reactivity:

Sensitive to light. May discolor on exposure to light. Incompatible with aluminum chloride, peroxydisulfuric acid, acetaldehyde, sodium nitrite, boron trifluoride diethyl ether + 1,3-butadiene, isocyanates, nitrides, mineral oxidizing acids, calcium hypochlorite, halogens, formaldehyde, metals and alloys, lead, zinc, magnesium and their alloys, plastics, rubber, coatings, sodium nitrate + trifluoroacetic acid, triisopropyl phosphine, acetone, disilane, fluorine, strong bases, reactive metals (aluminum in powdered form) Phenol + isocyanates results in heat generation, and violent polymerization. Phenol + 1,3-butadiene and boron trifluoride diethyl ether complex results in intense exothermic reaction. Phenol + acetaldehyde results in violent condensation.

Special Remarks on Corrosivity:

Minor corrosive effect on bronze. Severe corrosive effect on brass. (Phenol)

Polymerization: Will not occur.

Section 11: Toxicological Information

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

Toxicity to Animals:

Acute oral toxicity (LD50): 36 mg/kg [Mouse]. (Chloroform). Acute dermal toxicity (LD50): 630 mg/kg [Rabbit]. (Phenol).

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC [Phenol]. Classified + (Proven.) by NIOSH [Chloroform]. Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC [Chloroform]. Classified 2 (Some evidence.) by NTP [Chloroform]. **MUTAGENIC EFFECTS:** Mutagenic for mammalian somatic cells. [Phenol]. Mutagenic for bacteria and/or yeast. [Phenol]. Mutagenic for mammalian somatic cells. [Chloroform]. Mutagenic for bacteria and/or yeast. [Chloroform]. May cause damage to the following organs: kidneys, liver, heart, skin, eyes, central nervous system (CNS).

Other Toxic Effects on Humans:

Very hazardous in case of skin contact (irritant), of ingestion, . Hazardous in case of skin contact (permeator), of inhalation (lung corrosive). Slightly hazardous in case of skin contact (corrosive), of eye contact (corrosive).

Special Remarks on Toxicity to Animals:

Lowest Published Lethal Dose: LDL [Human] - Route: Oral; Dose: 140 mg/kg LDL [Infant] - Route: Oral; Dose: 10,000 mg/kg (Phenol)

Special Remarks on Chronic Effects on Humans:

Passes through the placental barrier. May cause adverse reproductive effects and birth defects (teratogenic) Embryotoxic and/or foetotoxic in animal. May affect genetic material (mutagenic). Contains Chloroform which is a suspected carcinogen (tumorigenic) based on animal data.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes severe skin irritation and skin burns or necrosis depending on severity of exposure. It is readily absorbed through skin. Harmful (moderately toxic) if it is absorbed through skin. It may affect behavior/nervous system (tremor, drunkenness, coma, and other symptoms of CNS depression), urinary system (hematuria), cardiovascular system (irregular heartbeat, circulatory failure), and may cause Methemoglobinemia . Phenol burns may be severe, but painless due to damage to nerve endings causing numbness. Eyes: Causes severe eye irritation and burns. May cause severe corneal injury. Inhalation: Inhalation or aspiration may result in spasm, inflammation and edema of the larynx and bronchi, pneumonitis, and pulmonary edema. Symptoms may include burning sensation , coughing, wheezing, laryngitis, shortness of breath or difficulty breathing, cyanosis, asphyxiation. It may also affect behavior/nervous system (weakness, fatigue, CNS depression - excitement followed by headache, drowsiness, seizures, convulsions, twitching, dizziness, spasticity, paralysis, drunkenness, euphoria, loss of coordination and judgement, muscle contraction/spasticity, nervousness, giddiness, delirium, hallucinations, fainting, convulsions, unconsciousness, coma), metabolism (loss of appetite, weight loss), gastrointestinal tract (stomach pain, nausea, diarrhea, vomiting), and urinary system/kidneys and liver. Other symptoms may include sweating and pallor, ringing in the ears. Ingestion: Harmful if swallowed! Causes digestive tract irritation and burns. Symptoms may include burning pain in the mouth and throat (gastrointestinal tract), nausea, vomiting, diarrhea, immediate and marked abdominal pain, areas of necrosis on the lips and in the mouth, throat, and esophagus (gastrointestinal tract), swelling of throat. May also cause severe and permanent damage to the digestive tract. May also affect respiration (tachypnea), liver (jaundice), kidneys, metabolism (metabolic acidosis, loss of appetite), cardiovascular system (cardiac arrhythmias, cardiac arrest, circulatory collapse), and affect behavior/central nervous system and cause central nervous system depression with symptoms similar to inhalation. Other symptoms may include pallor, and contracted or dilated pupils, dim vision, ringing in the ears. Advanced stages may cause collapse, unconsciousness, coma, and possible death due to respiratory failure. **Chronic Potential Health Effects:** Inhalation and Ingestion: Prolonged or repeated inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion. It may cause kidney, heart (necrosis of myocardium), and liver damage, degenerative changes in the brain, and affect the blood, metabolism (weight loss), endocrine system (spleen), respiration (fibrosis, pneumoconiosis), behavior/central nervous system (symptoms similar to acute inhalation).

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

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.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Toxic Liquid, Organic, n.o.s (phenol; chloroform; isoamyl alcohol solution)UNNA: 2810 PG: III

Special Provisions for Transport: Not available

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Chloroform California prop. 65 (no significant risk level): Chloroform: 0.02 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Chloroform Connecticut hazardous material survey.: Phenol Illinois toxic substances disclosure to employee act: Phenol Illinois chemical safety act: Phenol New York release reporting list: Phenol; Chloroform Rhode Island RTK hazardous substances: Phenol; Chloroform Pennsylvania RTK: Phenol; Chloroform; Isoamyl alcohol Minnesota: Phenol Massachusetts RTK: Phenol; Chloroform; Isoamyl alcohol Massachusetts spill list: Phenol New Jersey: Phenol; Chloroform New Jersey spill list: Phenol Louisiana RTK reporting list: Phenol Louisiana spill reporting: Phenol TSCA 8(b) inventory: Phenol; Chloroform; Tromethamine; Isoamyl alcohol TSCA 4(a) proposed test rules: Phenol TSCA 8(a) IUR: Phenol TSCA 8(d) H and S data reporting: Phenol: effective: 6/1/87; sunset: 6/01/97; Chloroform: effective: 6/1/87; sunset: 6/1/97 SARA 302/304/311/312 extremely hazardous substances: Phenol; Chloroform SARA 313 toxic chemical notification and release reporting: Phenol 50%; Chloroform 45% CERCLA: Hazardous substances.: Phenol: 1000 lbs. (453.6 kg); Chloroform: 10 lbs. (4.536 kg);

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):

CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

R26/27/28- Very toxic by inhalation, in contact with skin and if swallowed. R34- Causes burns. R45- May cause cancer. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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