

Material Safety Data Sheet

Phenol/Chloroform/Isoamyl Alcohol, pH 6.7/8.0

ACC# 91625

Section 1 - Chemical Product and Company Identification

MSDS Name: Phenol/Chloroform/Isoamyl Alcohol, pH 6.7/8.0

Catalog Numbers: BP1752I-100, BP1752I-400

Synonyms: Phenol Chloroform Mixture II (25:24:1)

Company Identification:

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
108-95-2	Phenol	45-55%	203-632-7
67-66-3	Chloroform	45-50%	200-663-8
123-51-3	Isoamyl alcohol	1.5-2.5%	204-633-5

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid.

Danger! Causes irritation and possible burns by all routes of exposure. Corrosive. Harmful if swallowed or absorbed through the skin. May be harmful if inhaled. Potential cancer hazard. May cause central nervous system depression. May cause liver and kidney damage. May cause methemoglobinemia. Keep refrigerated. (Store below 4°C/39°F.) May cause fetal effects based upon animal studies.

Target Organs: Blood, kidneys, central nervous system, liver, respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes eye irritation and possible burns. May cause chemical conjunctivitis and corneal damage.

Skin: Harmful if absorbed through the skin. Direct skin contact may result in white, wrinkled discoloration, followed by severe burns. Phenol solutions may be absorbed through the skin rapidly to cause systemic poisoning and possible death.

Ingestion: Harmful if swallowed. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. Overexposure may cause methemoglobinemia. May cause systemic effects. Causes digestive tract irritation with possible burns.

Inhalation: May be fatal if exposed to high concentrations. May cause severe respiratory tract irritation and possible burns. Aspiration may lead to pulmonary edema. May also cause pallor, loss of appetite, nausea, vomiting, diarrhea, weakness, darkened urine, headache, sweating, convulsions, cyanosis (bluish skin due to deficient oxygenation of the blood), unconsciousness, fatigue, pulmonary edema & coma. May cause systemic effects. Inhalation at high concentrations may cause CNS depression and asphyxiation.

Chronic: May cause liver and kidney damage. May cause fetal effects. Effects may be delayed. Repeated skin contact may cause dermatitis with dark pigmentation of the skin. Chronic exposure has been associated with an increased incidence of kidney, liver, rectal, bladder, colon, brain, and lymph node cancer.

Section 4 - First Aid Measures

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. SPEEDY ACTION IS CRITICAL! Destroy contaminated shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Persons with liver or kidney disease should not be exposed to phenol for any length of time.

Antidote: Activated charcoal, followed by cathartic, may be preferred to ipecac induced emesis or lavage in decontamination of the GI tract and preventing systemic absorption of phenol.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Containers may explode when heated.

Extinguishing Media: For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Do NOT get water inside containers. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray. Cool containers with flooding quantities of water until well after fire is out.

Flash Point: Not applicable.

Autoignition Temperature: Not applicable.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 4; Flammability: 1; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Discard contaminated shoes.

Storage: Keep container closed when not in use. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep refrigerated. (Store below 4°C/39°F.)

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Phenol	5 ppm TWA; Skin - potential significant contribution to overall exposure by the cutaneous route	5 ppm TWA; 19 mg/m ³ TWA 250 ppm IDLH	5 ppm TWA; 19 mg/m ³ TWA
Chloroform	10 ppm TWA	500 ppm IDLH	50 ppm Ceiling; 240 mg/m ³ Ceiling
Isoamyl alcohol	100 ppm TWA; 125 ppm STEL	100 ppm TWA; 360 mg/m ³ TWA 500 ppm IDLH	100 ppm TWA; 360 mg/m ³ TWA

OSHA Vacated PELs: Phenol: 5 ppm TWA; 19 mg/m³ TWA Chloroform: 2 ppm TWA; 9.78 mg/m³ TWA Isoamyl alcohol: 100 ppm TWA; 360 mg/m³ TWA

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: clear, colorless

Odor: none reported

pH: 6.7-8.0

Vapor Pressure: Not available.

Vapor Density: 5.59

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 96 - 97 deg C @ 8.30mm Hg

Freezing/Melting Point: 11 - 12 deg C

Decomposition Temperature: Not available.

Solubility: Not available.

Specific Gravity/Density: 1.1800g/cm³

Molecular Formula: C₆H₁₀O₅

Molecular Weight: 162.14

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Excess heat.

Incompatibilities with Other Materials: Metals, strong oxidizing agents, reducing agents, acids, acid chlorides, aluminum, fluorine, magnesium, isocyanates, potassium, acetaldehyde, lithium, sodium, nitrides (e.g. potassium nitride, sodium nitride), acid anhydrides, calcium hypochlorite, dinitrogen tetroxide, sodium + methanol, peroxomonosulfuric acid, potassium tert-butoxide, nitrobenzene, sodium nitrite, aluminum chloride, peroxydisulfuric acid, acetone + alkali, disilane, sodium methylate, triisopropylphosphine, sodium methoxide +

methanol, hydrogen trisulfide, 1,3-butadiene, boron trifluoride diethyl ether.

Hazardous Decomposition Products: Hydrogen chloride, phosgene, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, chlorine.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 108-95-2: SJ3325000

CAS# 67-66-3: FS9100000

CAS# 123-51-3: EL5425000

LD50/LC50:

CAS# 108-95-2:

Draize test, rabbit, eye: 5 mg Severe;
Draize test, rabbit, skin: 500 mg/24H Severe;
Draize test, rabbit, skin: 100 mg Mild;
Inhalation, mouse: LC50 = 177 mg/m³;
Inhalation, mouse: LC50 = 177 mg/m³/4H;
Inhalation, rat: LC50 = 316 mg/m³;
Inhalation, rat: LC50 = 316 mg/m³/4H;
Oral, mouse: LD50 = 270 mg/kg;
Oral, rat: LD50 = 317 mg/kg;
Oral, rat: LD50 = 512 mg/kg;
Skin, rabbit: LD50 = 630 mg/kg;
Skin, rat: LD50 = 669 mg/kg;
Skin, rat: LD50 = 1500 mg/kg;

CAS# 67-66-3:

Draize test, rabbit, eye: 148 mg;
Draize test, rabbit, eye: 20 mg/24H Moderate;
Draize test, rabbit, skin: 500 mg/24H Mild;
Inhalation, mouse: LC50 = 17200 mg/m³/2H;
Inhalation, mouse: LC50 = 6000 mg/m³/6H;
Inhalation, rat: LC50 = 47702 mg/m³/4H;
Inhalation, rat: LC50 = 6000 mg/m³/6H;
Oral, mouse: LD50 = 36 mg/kg;
Oral, rat: LD50 = 695 mg/kg;
Oral, rat: LD50 = 1250 mg/kg;
Skin, rabbit: LD50 = >20 gm/kg;

CAS# 123-51-3:

Draize test, rabbit, eye: 20 mg/24H Moderate;
Draize test, rabbit, skin: 20 mg/24H Moderate;
Oral, rabbit: LD50 = 3438 mg/kg;
Oral, rat: LD50 = 1300 mg/kg;
Oral, rat: LD50 = 4300 mg/kg;
Skin, rabbit: LD50 = 3970 uL/kg;

Carcinogenicity:

CAS# 108-95-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 67-66-3:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 10/1/87
- **NTP:** Suspect carcinogen
- **IARC:** Group 2B carcinogen

CAS# 123-51-3: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.

Teratogenicity: CAS# 108-95-2: Oral, rat: TDLo = 1200 mg/kg (female 6-15 day(s) after conception) Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).; Oral, mouse: TDLo = 4 gm/kg (female 6-15 day(s) after conception) Specific Developmental Abnormalities - musculoskeletal system.

Reproductive Effects: CAS# 108-95-2: Oral, rat: TDLo = 300 mg/kg (female 6-15 day(s) after conception) Fertility - post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).

Mutagenicity: CAS# 108-95-2: Mutation Test Systems - not otherwise specified: Human, HeLa cell = 17 mg/L.; DNA Inhibition: Human, HeLa cell = 1 mmol/L.; Mutation Test Systems - not otherwise specified: Human, Lymphocyte = 5 umol/L.; Sister Chromatid Exchange: Human, Lymphocyte = 5 umol/L.

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Water flea Daphnia: EC50=12 mg/l; 48-hour; CAS# 108-95-2: Unspecified Water flea Daphnia: EC50=4.0 mg/l; 96-hour; CAS# 108-95-2: Unspecified Fish: Fathead Minnow: LC50 > 50 mg/l; 1 Hr; CAS# 108-95-2 Static @ 18-22°C Fish: Fathead Minnow: TLm = 41 mg/L; 48-hour; CAS# 108-95-2: Flow-through @ 15°C Fish: Bluegill/Sunfish: TLm = 19 / 5.7 mg/L; 96 Hr; CAS# 108-95-2: Flow-through If released to the environment, phenol's primary removal mechanism is biodegradation which is generally rapid (days). If phenol is

released to soil, it will readily leach and biodegrade. The biodegradation in soil is generally rapid with half-lives of under 5 days even in subsurface soils.

Environmental: Phenol does not bioconcentrate in aquatic organisms. In the atmosphere, phenol occurs as a vapor and reacts with photochemically-produced hydroxyl radicals resulting in a half-life of approximately 15 hours. During the nighttime, it reacts with nitrate radicals with a resulting half-life of 12 minutes. Phenol has also been shown to be readily removed from the atmosphere by rain.

Physical: No information available.

Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series:

CAS# 108-95-2: waste number U188.

CAS# 67-66-3: waste number U044.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	TOXIC LIQUIDS, ORGANIC, N.O.S.	No information available.
Hazard Class:	6.1	
UN Number:	UN2810	
Packing Group:	II	

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 108-95-2 is listed on the TSCA inventory.

CAS# 67-66-3 is listed on the TSCA inventory.

CAS# 123-51-3 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 108-95-2: Effective 6/1/87, Sunset 6/1/97 CAS# 67-66-3: Effective 6/1/87, Sunset 6/1/97

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 108-95-2: 1000 lb final RQ; 454 kg final RQ CAS# 67-66-3: 10 lb final RQ; 4.54 kg final RQ

SARA Section 302 Extremely Hazardous Substances

CAS# 108-95-2: 500 lb TPQ (lower threshold); 10000 lb TPQ (upper threshold) CAS# 67-66-3: 10000 lb TPQ

SARA Codes

CAS # 108-95-2: immediate, delayed, fire.

CAS # 67-66-3: immediate, delayed.

CAS # 123-51-3: immediate, fire.

Section 313

This material contains Phenol (CAS# 108-95-2, 45-55%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains Chloroform (CAS# 67-66-3, 45-50%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 108-95-2 is listed as a hazardous air pollutant (HAP).

CAS# 67-66-3 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

CAS# 108-95-2 is listed as a Hazardous Substance under the CWA. CAS# 67-66-3 is listed as a Hazardous Substance under the CWA.

CAS# 108-95-2 is listed as a Priority Pollutant under the Clean Water Act. CAS# 67-66-3 is listed as a Priority Pollutant under the Clean Water Act. CAS# 108-95-2 is listed as a Toxic Pollutant under the Clean Water Act. CAS# 67-66-3 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 108-95-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 67-66-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

CAS# 123-51-3 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

WARNING: This product contains Chloroform, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: CAS# 67-66-3: 20 æg/day NSRL (oral); 40 æg/day NSRL (inhalation)

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T C

Risk Phrases:

R 34 Causes burns.

Safety Phrases:

S 1/2 Keep locked up and out of reach of children.

S 28 After contact with skin, wash immediately with...

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 108-95-2: 2

CAS# 67-66-3: 3

CAS# 123-51-3: 1

Canada - DSL/NDSL

CAS# 108-95-2 is listed on Canada's DSL List.

CAS# 67-66-3 is listed on Canada's DSL List.

CAS# 123-51-3 is listed on Canada's DSL List.

Canada - WHMIS

WHMIS: Not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 108-95-2 is listed on the Canadian Ingredient Disclosure List.

CAS# 67-66-3 is listed on the Canadian Ingredient Disclosure List.

CAS# 123-51-3 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 8/03/2000

Revision #4 Date: 1/27/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.