Fisher Scientific

Part of Thermo Fisher Scientific

# Material Safety Data Sheet

**Creation Date** 03-Dec-2010 **Revision Date** 02-Dec-2011 **Revision Number** 1

## 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name** **Phenol**

**Cat No.** **A91I-212; A91I-500; A92-100; A92-112; A92-500; BP226-100; BP226-500**

**Synonyms** Carbolic acid; Hydroxybenzene

**Recommended Use** Laboratory chemicals

**Company**
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

**Emergency Telephone Number**
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

## 2. HAZARDS IDENTIFICATION

**DANGER!**

**Emergency Overview**

Combustible material. Toxic by inhalation, in contact with skin and if swallowed. Causes burns by all exposure routes. Danger of serious damage to health by prolonged exposure. Possible risks of irreversible effects.

**Appearance** Colorless **Physical State** Solid **odor** sweet

**Target Organs** Eyes, Skin, Respiratory system, Gastrointestinal tract (GI), Central nervous system (CNS), Blood, Liver, Kidney

**Potential Health Effects**

**Acute Effects**
**Principle Routes of Exposure**

| | |
|---|---|
| **Eyes** | Causes burns. |
| **Skin** | Causes burns. Toxic in contact with skin. |
| **Inhalation** | Causes burns. Toxic by inhalation. |
| **Ingestion** | Ingestion causes burns of the upper digestive and respiratory tract. Toxic if swallowed. |

**Chronic Effects** Danger of serious damage to health by prolonged exposure. Possible risks of irreversible effects. Liver and kidney injuries may occur.

See Section 11 for additional Toxicological information.

**Aggravated Medical Conditions** No information available.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Haz/Non-haz**

| Component | CAS-No | Weight % |
|---|---|---|
| Phenol | 108-95-2 | 99 |

## 4. FIRST AID MEASURES

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Inhalation** Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

**Ingestion** Do not induce vomiting. Call a physician or Poison Control Center immediately.

**Notes to Physician** Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

**Flash Point** 79°C / 174.2°F

**Method** No information available.

**Autoignition Temperature** 605°C / 1121°F

**Explosion Limits**
**Upper** 8.6%
**Lower** 1.7%

**Suitable Extinguishing Media** Water spray. Carbon dioxide ($CO_2$). Dry chemical. chemical foam.

**Unsuitable Extinguishing Media** No information available.

**Hazardous Combustion Products** No information available.

**Sensitivity to mechanical impact** No information available.
**Sensitivity to static discharge** No information available.

**Specific Hazards Arising from the Chemical**
Combustible material. Flammable. Vapors may form explosive mixtures with air.

**Protective Equipment and Precautions for Firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA** **Health** 3 **Flammability** 2 **Instability** 1 **Physical hazards** N/A

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions** Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and inhalation of vapors.. Avoid dust formation.

**Environmental Precautions** Should not be released into the environment

**Methods for Containment and Clean Up** Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.. Avoid dust formation.

## 7. HANDLING AND STORAGE

**Handling** Use only under a chemical fume hood. Wear personal protective equipment. Avoid dust formation. Do not breathe dust. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing.

**Storage** Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Corrosives area. Keep away from oxidizing agents. Protect from moisture. Protect from light.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Measures** Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

**Exposure Guidelines**

| Component | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|---|---|---|
| Phenol | TWA: 5 ppm<br>Skin | (Vacated) TWA: 5 ppm<br>(Vacated) TWA: 19 mg/m$^3$<br>Skin<br>TWA: 5 ppm<br>TWA: 19 mg/m$^3$ | IDLH: 250 ppm<br>TWA: 5 ppm<br>TWA: 19 mg/m$^3$<br>Ceiling: 15.6 ppm<br>Ceiling: 60 mg/m$^3$ |

| Component | Quebec | Mexico OEL (TWA) | Ontario TWAEV |
|---|---|---|---|
| Phenol | TWA: 5 ppm<br>TWA: 19 mg/m$^3$<br>Skin | TWA: 5 ppm<br>TWA: 19 mg/m$^3$<br>STEL: 10 ppm<br>STEL: 38 mg/m$^3$ | TWA: 5 ppm<br>Skin |

***NIOSH IDLH:*** *Immediately Dangerous to Life or Health*

**Personal Protective Equipment**

**Eye/face Protection** 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 and body protection** Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical State** Solid

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| **Appearance** | Colorless |
| **odor** | sweet |
| **Odor Threshold** | No information available. |
| **pH** | 6 |
| **Vapor Pressure** | 0.4 mbar @ 20 °C |
| **Vapor Density** | 3.2 |
| **Viscosity** | No information available. |
| **Boiling Point/Range** | 182°C / 359.6°F@ 760 mmHg |
| **Melting Point/Range** | 39 - 42°C / 102.2 - 107.6°F |
| **Decomposition temperature** | No information available. |
| **Flash Point** | 79°C / 174.2°F |
| **Evaporation Rate** | No information available. |
| **Specific Gravity** | 1.070 |
| **Solubility** | No information available. |
| **log Pow** | No data available |
| **Molecular Weight** | 94.11 |
| **Molecular Formula** | C6 H6 O |

## 10. STABILITY AND REACTIVITY

| | |
|---|---|
| **Stability** | Stable. Hygroscopic. Light sensitive. |
| **Conditions to Avoid** | Exposure to light. Incompatible products. Exposure to moist air or water. |
| **Incompatible Materials** | Acids, Bases, Strong oxidizing agents, Halogens, lead, Metals |
| **Hazardous Decomposition Products** | Carbon monoxide (CO), Carbon dioxide ($CO_2$) |
| **Hazardous Polymerization** | Hazardous polymerization does not occur |
| **Hazardous Reactions .** | None under normal processing. |

## 11. TOXICOLOGICAL INFORMATION

**Acute Toxicity**

**Component Information**

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| Phenol | 317 mg/kg ( Rat ) | 525 mg/kg ( Rat )<br>630 mg/kg ( Rabbit ) | 316 mg/m$^3$ ( Rat ) 4 h |

**Irritation** Causes burns by all exposure routes

**Toxicologically Synergistic Products** No information available.

**Chronic Toxicity**

**Carcinogenicity** There are no known carcinogenic chemicals in this product

| Component | ACGIH | IARC | NTP | OSHA | Mexico |
|---|---|---|---|---|---|
| Phenol | Not listed | group 3 | Not listed | Not listed | Not listed |

**Sensitization** No information available.

**Mutagenic Effects** No information available.

**Reproductive Effects** Experiments have shown reproductive toxicity effects on laboratory animals.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**Other Adverse Effects** See actual entry in RTECS for complete information.

**Endocrine Disruptor Information** No information available

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

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| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|---|---|---|---|---|
| Phenol | 0.0188 - 0.1044 mg/L EC50 96 h<br>46.42 mg/L EC50 = 96 h<br>187 - 279 mg/L EC50 72 h | 4-7 mg/L LC50 96 h<br>32 mg/L LC50 96 h | EC50 21 - 36 mg/L 30 min<br>EC50 = 23.28 mg/L 5 min<br>EC50 = 25.61 mg/L 15 min<br>EC50 = 28.8 mg/L 5 min<br>EC50 = 31.6 mg/L 15 min | 10.2 - 15.5 mg/L EC50 48 h<br>4.24 - 10.7 mg/L EC50 48 h |

**Persistence and Degradability** No information available

**Bioaccumulation/ Accumulation** No information available

**Mobility** .

| Component | log Pow |
|---|---|
| Phenol | 1.47 |

## 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

| Component | RCRA - U Series Wastes | RCRA - P Series Wastes |
|---|---|---|
| Phenol - 108-95-2 | U188 | - |

## 14. TRANSPORT INFORMATION

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**DOT**

| | |
|---|---|
| **UN-No** | UN1671 |
| **Proper Shipping Name** | PHENOL, SOLID |
| **Hazard Class** | 6.1 |
| **Packing Group** | II |

**TDG**

| | |
|---|---|
| **UN-No** | UN1671 |
| **Proper Shipping Name** | PHENOL, SOLID |
| **Hazard Class** | 6.1 |
| **Packing Group** | II |

**IATA**

| | |
|---|---|
| **UN-No** | 1671 |
| **Proper Shipping Name** | PHENOL, SOLID |
| **Hazard Class** | 6.1 |
| **Packing Group** | II |

**IMDG/IMO**

| | |
|---|---|
| **UN-No** | 1671 |
| **Proper Shipping Name** | PHENOL, SOLID |
| **Hazard Class** | 6.1 |
| **Packing Group** | II |

## 15. REGULATORY INFORMATION

**International Inventories**

| Component | TSCA | DSL | NDSL | EINECS | ELINCS | NLP | PICCS | ENCS | AICS | CHINA | KECL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Phenol | X | X | - | 203-632-7 | - | | X | X | X | X | X |

**Legend:**
**X - Listed**
**E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.**
**F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.**
**N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.**
**P - Indicates a commenced PMN substance**
**R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.**
**S - Indicates a substance that is identified in a proposed or final Significant New Use Rule**
**T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.**
**XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).**
**Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.**
**Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.**

## U.S. Federal Regulations

**TSCA 12(b)** Not applicable

**SARA 313**

| Component | CAS-No | Weight % | SARA 313 - Threshold Values % |
|---|---|---|---|
| Phenol | 108-95-2 | 99 | 1.0 |

**SARA 311/312 Hazardous Categorization**

| | |
|---|---|
| **Acute Health Hazard** | Yes |
| **Chronic Health Hazard** | Yes |
| **Fire Hazard** | Yes |
| **Sudden Release of Pressure Hazard** | No |
| **Reactive Hazard** | No |

**Clean Water Act**

| Component | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|---|---|---|---|---|
| Phenol | X | 1000 lb | X | X |

**Clean Air Act**

| Component | HAPS Data | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|---|---|---|---|
| Phenol | X | | - |

**OSHA**
Not applicable

**CERCLA**
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Component | Hazardous Substances RQs | CERCLA EHS RQs |
|---|---|---|
| Phenol | 1000 lb | 1000 lb |

**California Proposition 65**
This product does not contain any Proposition 65 chemicals.

**State Right-to-Know**

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---|---|---|---|---|---|
| Phenol | X | X | X | X | X |

## U.S. Department of Transportation

| | |
|---|---|
| Reportable Quantity (RQ): | N |
| DOT Marine Pollutant | N |
| DOT Severe Marine Pollutant | N |

## U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

## Other International Regulations

**Mexico - Grade** No information available

**Canada**

**This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.**

**WHMIS Hazard Class**
B3 Combustible liquid
D1A Very toxic materials
E Corrosive material

## 16. OTHER INFORMATION

**Prepared By** Regulatory Affairs
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**Print Date** 02-Dec-2011

**Revision Summary** "***", and red text indicates revision

**Disclaimer**
**The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.**

**End of MSDS**