1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Phenol
Product Number : P3653
Brand : Sigma-Aldrich
Company : Sigma-Aldrich
            3050 Spruce Street
            SAINT LOUIS MO  63103
            USA
Telephone : +18003255832
Fax : +18003255052
Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview
OSHA Hazards
Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Corrosive, Mutagen

Target Organs
Central nervous system, Kidney, Liver, Pancreas, Spleen.

GHS Label elements, including precautionary statements
Pictogram

Signal word Danger
Hazard statement(s)
- H302 Harmful if swallowed.
- H311 + H331 Toxic in contact with skin or if inhaled.
- H314 Causes severe skin burns and eye damage.
- H341 Suspected of causing genetic defects.
- H371 May cause damage to organs.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H402 Harmful to aquatic life.

Precautionary statement(s)
- P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a POISON CENTER or doctor/ physician.

HMIS Classification
- Health hazard: 3
- Chronic Health Hazard: *
- Flammability: 0
- Physical hazards: 0

NFPA Rating
- Health hazard: 3
- Fire: 2
- Reactivity Hazard: 0
Potential Health Effects

**Inhalation**
Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

**Skin**
Toxic if absorbed through skin. Causes skin burns.

**Eyes**
Causes eye burns.

**Ingestion**
Toxic if swallowed.

3. **COMPOSITION/INFORMATION ON INGREDIENTS**

**Synonyms**
Hydroxybenzene

**Formula**
C₆H₆O

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>203-632-7</td>
<td>604-001-00-2</td>
</tr>
<tr>
<td>Phosphinic acid</td>
<td>6303-21-5</td>
<td>228-601-5</td>
<td>-</td>
</tr>
</tbody>
</table>

4. **FIRST AID MEASURES**

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**
Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. **FIRE-FIGHTING MEASURES**

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for fire-fighters**
Wear self contained breathing apparatus for fire fighting if necessary.

6. **ACCIDENTAL RELEASE MEASURES**

**Personal precautions**
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up**
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. **HANDLING AND STORAGE**
Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>TWA</td>
<td>5 ppm</td>
<td>2007-01-01</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks
Central Nervous System impairment Upper Respiratory Tract irritation Lung damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories. Danger of cutaneous absorption

<table>
<thead>
<tr>
<th>TWA</th>
<th>5 ppm</th>
<th>19 mg/m3</th>
<th>1989-01-19</th>
<th>USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000</th>
</tr>
</thead>
</table>

Skin notation

<table>
<thead>
<tr>
<th>TWA</th>
<th>5 ppm</th>
<th>19 mg/m3</th>
<th>1997-08-04</th>
<th>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</th>
</tr>
</thead>
</table>

Skin designation The value in mg/m3 is approximate.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form solid
10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Conditions to avoid
no data available

Materials to avoid
Strong oxidizing agents, Strong bases, Strong acids

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Contains the following stabiliser(s):
Phosphinic acid (0.15 %)

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - rat - 410.0 - 650.0 mg/kg
LD50 Oral - rat - 317.0 mg/kg
Remarks: Behavioral: Convulsions or effect on seizure threshold.
LC50 Inhalation - rat - 8 h - 900 mg/m3
LD50 Dermal - rabbit - 630.0 mg/kg

Skin corrosion/irritation
Skin - rabbit - Severe skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - rabbit - Severe eye irritation

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
In vitro tests showed mutagenic effects

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
May cause damage to organs.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
no data available

Potential health effects

Inhalation  Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion  Toxic if swallowed.

Skin  Toxic if absorbed through skin. Causes skin burns.

Eyes  Causes eye burns.

Signs and Symptoms of Exposure
burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Circulatory collapse, tachypnea, paralysis, Convulsions, Coma.

Additional Information
RTECS: SJ3325000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish  LC50 - Leuciscus idus (Golden orfe) - 14.00 - 25.00 mg/l - 48 h
LC50 - Carassius auratus (goldfish) - 36.10 - 68.80 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates.  EC50 - Daphnia magna (Water flea) - 12.00 mg/l - 24 h

EC100 - Daphnia magna (Water flea) - 100.00 mg/l - 24 h

Toxicity to algae  EC50 - Chlorella vulgaris (Fresh water algae) - 370.00 mg/l - 96 h

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

**Product**
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**
Dispose of as unused product.

14. TRANSPORT INFORMATION

**DOT (US)**
- UN-Number: 1671  Class: 6.1  Packing group: II
- Proper shipping name: Phenol, solid
- Reportable Quantity (RQ): 1002 lbs
- Marine pollutant: No
- Poison Inhalation Hazard: No

**IMDG**
- UN-Number: 1671  Class: 6.1  Packing group: II
- Proper shipping name: PHENOL, SOLID
- Marine pollutant: No
- EMS-No: F-A, S-A

**IATA**
- UN-Number: 1671  Class: 6.1  Packing group: II
- Proper shipping name: Phenol, solid

15. REGULATORY INFORMATION

**OSHA Hazards**
Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Corrosive, Mutagen

**DSL Status**
All components of this product are on the Canadian DSL list.

**SARA 302 Components**

| Phenol          | CAS-No. 108-95-2 | Revision Date 2007-07-01 |

**SARA 313 Components**

| Phenol          | CAS-No. 108-95-2 | Revision Date 2007-07-01 |

**SARA 311/312 Hazards**
Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

| Phenol          | CAS-No. 108-95-2 | Revision Date 2007-07-01 |

**Pennsylvania Right To Know Components**

| Phenol          | CAS-No. 108-95-2 | Revision Date 2007-07-01 |

**New Jersey Right To Know Components**

| Phenol          | CAS-No. 108-95-2 | Revision Date 2007-07-01 |
California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
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