IDENTIFICATION

MSDS Record Number: 5618293
Product Name(s): PHENOL SOLUTION
Product Identification: MSDS NUMBER: P1953
PRODUCT CODE: H302
C.A.S. NUMBER: 108-95-2
Date of MSDS: 2006-01-09
Currency Note: This MSDS was acquired from the supplier on 2007-09-06.

MANUFACTURER/SUPPLIER INFORMATION

Company: MALLINCKRODT BAKER INC

MATERIAL SAFETY DATA

Effective Date: 01/09/06
Supercedes: 05/08/03

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MSDS MATERIAL SAFETY DATA SHEET
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CHEMTREC: 800-424-9300 (USA)
703-527-3887 (Outside USA & CANADA)
CANUTEC: 613-996-6666

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865

Emergency Telephone Number: 908-859-2151

NOTE: Use CHEMTREC and CANUTEC phone numbers only in the event of a chemical emergency.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

M A L L I N C R O D T

PHENOL SOLUTION

1. Product Identification

   Synonyms: Phenol solution (1ml = 1mg phenol); carboic acid solution
   CAS No: 108-95-2
   Molecular Weight: 94.11
   Chemical Formula: C6H5OH
Product Codes: H302

2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenol</td>
<td>108-95-2</td>
<td>&lt; 1%</td>
<td>No</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>&gt; 99%</td>
<td>No</td>
</tr>
</tbody>
</table>

3. Hazards Identification

Emergency Overview

WARNING! HARMFUL IF SWALLOWED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN AND EYES. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS.

SAP-T-DATA(tm) Ratings (Provided here for your convenience)

<table>
<thead>
<tr>
<th>Health Rating</th>
<th>Flammability Rating</th>
<th>Reactivity Rating</th>
<th>Contact Rating</th>
<th>Lab Protective Equip</th>
<th>Storage Color Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - Severe (Life)</td>
<td>0 - None</td>
<td>1 - Slight</td>
<td>3 - Severe</td>
<td>GOGGLES &amp; SHIELD; LAB COAT &amp; APRON; VENT HOOD; PROPER GLOVES</td>
<td>Green (General Storage)</td>
</tr>
</tbody>
</table>

Potential Health Effects

Inhalation:
No adverse health effects expected from inhalation.

Ingestion:
May be harmful if swallowed. Although at a very low concentration in this solution, phenol is a highly toxic substance. Ingestion of greater than 5% solution may result in oral burns. Symptoms may include burning pain in mouth and throat, abdominal pain, nausea, vomiting, headache, dizziness, muscular weakness, central nervous system effects, increase in heart rate, irregular breathing, coma, and possibly death. Acute exposure is also associated with kidney and liver damage. Ingestion of 1 gram has been lethal to humans.

Skin Contact:
May cause irritation and possibly absorption of phenol if applied to large skin areas or on particularly moist skin areas (feet, groin).

Eye Contact:
Effects are expected to be less severe than exposure to higher concentrations of phenol where symptoms may include eye burns with redness, pain, blurred vision, and possible damage and blindness.

Chronic Exposure:
No information found.

Aggravation of Pre-existing Conditions:
No information found.

4. First Aid Measures
Inhalation:
Not expected to require first aid measures. Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:
Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

5. Fire Fighting Measures

Fire:
Not considered to be a fire hazard.

Explosion:
Not considered to be an explosion hazard.

Fire Extinguishing Media:
Use any means suitable for extinguishing surrounding fire.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. Collect liquid in an appropriate container or absorb with an inert material (e.g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
Phenol:
- OSHA Permissible Exposure Limit (PEL):
  5 ppm (TWA) (skin)
- ACGIH Threshold Limit Value (TLV):
  5 ppm (TWA) (skin)

Ventilation System:
Not expected to require any special ventilation.

Personal Respirators (NIOSH Approved):
Not expected to require personal respirator usage.

Skin Protection:
Wear protective gloves and clean body-covering clothing.

Eye Protection:
Use chemical safety goggles. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance: Clear solution.

Boiling Point: No information found.

Odor: Odorless.

Melting Point: No information found.

Solubility: Soluble in water.

Vapor Density (Air=1): No information found.

Specific Gravity: 1.01

Vapor Pressure (mm Hg): No information found.

pH: No information found.

Evaporation Rate (BuAc=1): No information found.

% Volatiles by volume @ 21C (70F): No information found.

10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:
Carbon dioxide and carbon monoxide may form when heated to decomposition.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
No information found.

Conditions to Avoid:
No information found.

11. Toxicological Information
For phenol: Oral rat LD50: 317 mg/Kg; skin rabbit LD50:630 mg/kg; inhalation rat LC50: 316 mg/m3; irritation data: skin rabbit, standard Draize, 500 mg/24H severe; eye rabbit, standard Draize 5 mg/30S rinse, mild. Investigated as a tumorigen, mutagen, reproductive effector.

--------\Cancer Lists\--------- \---NTP Carcinogen---
Ingredient Known Anticipated IARC Category
----------------- ---------- ----------- ------------
Phenol (108-95-2) No No 3
Water (7732-18-5) No No None

12. Ecological Information

Environmental Fate:
No information found.

Environmental Toxicity:
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations.

Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

--------\Chemical Inventory Status - Part 1\---------
Ingredient TSCA EC Japan Australia
----------------- ------- ----- ----- -------
Phenol (108-95-2) Yes Yes Yes Yes
Water (7732-18-5) Yes Yes Yes Yes

--------\Chemical Inventory Status - Part 2\---------
Ingredient Korea DSL NDSL Phil.
----------------- ------- ------ ----- ------
Phenol (108-95-2) Yes Yes No Yes
Water (7732-18-5) Yes Yes No Yes

--------\Federal, State & International Regulations - Part 1\---------
Ingredient RQ TPQ List Chemical Catg.
----------------- ----- ------ ------
Phenol (108-95-2) 1000 500* Yes No
Water (7732-18-5) No No No No
16. Other Information

NFPA Ratings:
Health: 1  Flammability: 0  Reactivity: 0

Label Hazard Warning:
WARNING! HARMFUL IF SWALLOWED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN AND EYES. AFFECTS CENTRAL NERVOUS SYSTEM, LIVER AND KIDNEYS.

Label Precautions:
Avoid contact with eyes, skin and clothing.
Wash thoroughly after handling.
Keep container closed.
Use with adequate ventilation.

Label First Aid:
If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

Product Use:
Laboratory Reagent.

Revision Information:
MSDS Section(s) changed since last revision of document include: 3.

Disclaimer:
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