Arichem, LLC
MATERIAL SAFETY DATA SHEET
PHENOLSULFONIC ACID

SECTION 1: MATERIAL IDENTIFICATION

Specification number: 20, 20a, 20b, 21, and 40

Manufacturer: Arichem, LLC
187 Sloss Industries Rd.
Ariton, AL 36311

Phone numbers: Product Information: 334/762-2314
8:00 AM to 4:30 PM Monday thru Friday
24Hr contact: 333/762-2314
Transport Emergencies:
Call CHEMTREC: 1/800/424-9300

DOT number: UN. 1803

Shipping name: Phenolsulfonic Acid, liquid (See Section 14)

Product name: Phenolsulfonic Acid

CAS name: Benzenesulfonic Acid, 4-Hydroxy

CAS number: 98-67-9

Formula: C6H6SO4

HMIS rating: Health 3; Flammability 1; Reactivity 0;
Personal Protection H.

Synonyms: p-Hydroxybenezenesulfonic Acid, Sulfocarbolic Acid.

SECTION 2: COMPONENTS

Material	CAS#	% by wt.
Phenolsulfonic Acid	98-67-9	65 - 75
Sulfuric Acid	7664-93-9	2.8
Phenol	108-95-2	1.0

These components are listed on the TSCA Inventory. See sections 3, 8, and 11 for exposure information.

SECTION 3: HAZARD IDENTIICATION

EMERGENCY OVERVIEW

Red to brown liquid with characteristic "Phenol" odor Phenolsulfonic Acid is a strong acid. Sulfuric Acid (2.8%) reacts violently with water and explosively with sodium metal (See Section 10). Phenol (1%) is flammable, corrosive, and toxic. Direct contact with corrosive material can result in damage to human tissue. PSA is toxic by ingestion, inhalation, and absorption. The health hazards associated with Phenolsulfonic Acid are due primarily to its acidity. This is a strong acid and prolonged exposure of the skin or contact with the eyes or mucous membranes will result in the same type of damage characteristic of any strong acid.

The phenol component (1%) of this material is readily absorbed through the skin, is corrosive;
but may also cause liver and kidney damage.

Effects of Contact

Eyes: Avoid contact. Acid burns vary from those that heal completely to those that cause blindness.

Skin: Avoid contact. The effects of contact, even of short duration, can range from minor irritation to
acute destruction of tissue.

Ingestion: Strong acids are poisons if ingested. In addition they cause the same type tissue damage to the mucosal membranes of the mouth, esophagus, and stomach that they cause to the eyes and skin.

Inhalation: Sulfuric Acid is primarily responsible for the inhalation hazard posed by Phenolsulfonic Acid. At room temperature, Sulfuric Acid gives off toxic and corrosive vapors. Normally, exposure to concentrations of 0.125-0.5 PPM is annoying, exposure to 1.5-2.5 PPM is unpleasant and exposure to 10-20 PPM unbearable. Workers exposed to low concentrations gradually lose their sensitivity. Consequently, exposure to greater concentrations becomes possible and with this comes the danger of severe exposure resulting in erosion of teeth, chemical pneumonitis, and in an extreme case loss of consciousness with serious lung damage.

Carcinogenicity: None of the components of this material are listed by NTP, OSHA, or IARC as a carcinogen or suspected carcinogen.

SECTION 4: FIRST AID

Eyes or skin contact: In case of contact with the eyes or skin immediately begin flushing with water. Continue for at least 20 minutes. It is preferable to use cool water, not hot or cold. Water of extreme temperatures can cause additional injuries.

Ingestion: If swallowed DO NOT INDUCE VOMITING. Get trained medical help immediately. If medical help is not available, one or two glasses of milk or water may be given. Do not exceed two glasses and never give anything by mouth to an unconscious person.

Inhalation: In case of exposure to concentrated vapors, immediately move the exposed person to fresh air. If they are not breathing, artificial respiration may be required. If breathing appears difficult give oxygen. Call for trained medical help immediately.

IN ALL CASES GET TRAINED MEDICAL HELP IMMEDIATELY

NOTE TO PHYSICIAN

Phenolsulfonic Acid is a strong acid solution consisting of Phenolsulfonic acid, sulfuric acid (2.8% by wt.), and phenol (1% by wt.). The total acidity of this material is 20-22 percent by weight. The initial treatment of exposure to this material should be consistent with that for any strong acid. The initial signs and symptoms of exposure or ingestion may include: erythema and vesicle formation to penetrating ulcers for external contact, and crying, pain on swallowing, inability to swallow, mucous membrane burns, circumoral burns, hematemesis, abdominal pain, respiratory distress, shock and renal failure for ingestion.

Initial treatment for exposure of the eyes or skin should consist of irrigation with copious amounts of water or saline. For the eyes, the use of anesthetic agents is permissible, and retraction of the eyelids to ensure that the conjunctival cul-de-sacs are well washed is recommended. Be sure to remove all contaminants. Flushing should be continued for at least 20 to 30 minutes. A complete eye exam should follow. DO NOT USE NEUTRALIZERS OR OTHER ADDITIVES.

Where ingestion is involved, DO NOT INDUCE VOMITING. Immediate dilution (within 30 minutes of ingestion) with one or two glasses of milk or water is the treatment of choice. Alkaline substances or carbonate preparations are contraindicated since, when administered they may produce increased amounts of heat and carbon dioxide gas which presents an unacceptable risk of gastric perforation.

SECTION 5: FIRE AND EXPLOSION DATA

This material will not readily ignite. However, 2.8 percent of this material is free sulfuric acid that is a strong acidic oxidizer. Sulfuric acid reacts explosively with sodium, and with other metal to yield hydrogen gas. At elevated temperatures sulfur oxide vapors evolve.

Flash point: > 212oF (>100 oC)
Flammable limits (air % by vol.):
a. Lower explosive limit: 1.7% (phenol component)
b. Upper explosive limit: 36.5% (phenol component)
Autoignition: 1319oF (phenol component)
Extinguishing media:
Small Fires: Dry chemical, CO2, foam.
Large Fires: Water fog may be used, however, do not direct the stream directly at material. Use

fog to control vapors.

Fire and Explosion:
1. Combustion products contain sulfur oxides.
2. Sulfuric acid (2.8%) is a strong oxidizer, and reacts vigorously with water. It reacts explosively with sodium. See Section 10.

Fire Fighting Instructions:
1. Evacuate all unauthorized personnel.
2. Use self-contained positive pressure breathing apparatus and chemical resistant protective clothing. (Structural fire fighting clothing is not effective for acids.)
3. Approach fire from upwind.
4. Dike fire control water for later disposal. See Section 13.

SECTION 6: ACCIDENTAL RELEASE MEASURES

1. Evacuate all unauthorized personnel and ventilate. Wear adequate personal protection while working with spill. See Section 8.
2. Do not touch or walk through spilled material. Stop leak if it can be done safely.
3. Small Spills: Take up with sand or other noncombustible, absorbent material and save for later disposal or recycle. See Section 13.
4. Large Spills: Secure spill area. Dike around spill and save for later disposal or recycle. See Section 13.
5. Do not leave spill unattended.

SECTION 7: HANDLING AND STORAGE

Handling:

1. This is a strong acid. Handle with care and avoid skin contact.
2. Handle in a well-ventilated area.
3. Where adequate ventilation is not possible use a NIOSH/MSHA approved organic vapor/acid gas air purifying respirator or air line supplied depending upon concentration. See Section 8.
4. Always wear chemical goggles and face shield, acid resistant gloves, and acid resistant apron. Where splashing is possible, use additional chemical protective clothing.

Storage:

1. Store in tightly sealed, polyethylene lined containers. Do not store below 41oF (5oC), or above 140oF (60oC) for long periods.
2.
3. Store material separately from combustibles and other reactive materials. See reactivity Section 10.
4. Rotate stock. Do not puncture containers.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

The Sulfuric acid component of this material (2.8% by wt.) has a TLV of 1mg/m3. The phenol

1.

component of this material (1.0%) has a TLV of 5 PPM and may be absorbed via skin contact. Ventilation capable of maintaining vapor concentrations below this level is recommended.

2. Where adequate ventilation is not possible use a NIOSH/MSHA approved organic vapor/acid gas air purifying respirator.
3. In routine handling of closed containers, use chemical goggles, face shield, acid resistant gloves, and acid resistant apron.
4. Where direct contact is possible, use additional chemical resistant protective clothing.

Exposure Limits:

1. Phenolsulfonic Acid:
   No established exposure limits.
2. Sulfuric Acid:
   PEL 1mg/m3
   OSHA:
   TLV 1mg/m3

ACGIH:
STEL 3mg/m3

3. Phenol:
OSHA: PEL 5 ppm (skin)
ACGIH: TLV 5 ppm (skin)
5 ppm (19mg/m3)
DFG MAK:
20mg/m3; Ceiling, 60mg/m3/15min.
NIOSH:

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Red to brown liquid
Odor: Phenol
Physical state: Liquid
Total acidity: 20-22 percent by weight
Vapor pressure (mmHg): 0.357 @ 68oF (20oC) (Phenol component)
Vapor density (air=1): not established
Boiling point: 518oF (270oC)
Freezing point: 43.5oF (6.4oC)
Solubility in water: 100% at 77oF (25oC)
Percent volatile by volume: not established
Specific gravity (H2O=1): 1.35 @ 77oF (25oC)

SECTION 10: STABILITY AND REACTIVITY

1. Phenolsulfonic Acid
a. Stability: Stable
b. Hazardous Polymerization: Will not occur.
c. Incompatibility: Ferrous metals, leather, and cotton. Phenolsulfonic acid will react with
water or steam to produce heat.
d. Decomposition Products: SOx vapors.

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2. Sulfuric Acid (2.8% by wt.)
a. Stability: Stable
b. Hazardous Polymerization: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

1. Phenolsulfonic Acid:
oral-rat; LD50: 6400mg/kg
inhalation-rat: 35.0mg/L
skin-rabbit; LD: 7940mg/kg
2. Sulfuric Acid:
inhalation-human; TCLo: 3mg/m3/24W
unspecified route of administration-man; LDLo:135mg/kg
oral-rat; LD50: 2140mg/kg
inhalation-rat; LC50: 510mg/m3
OSHA PEL: TWA 1mg/m3
ACGIH TLV: TWA 1mg/m3
STEL 3mg/m3
3. Phenol:
oral-rat; LD50: 317mg/kg
oral-human; LD50: 140mg/kg
inhalation-rat; LC50: 350mg/m3
skin-rabbit; LD50: 699mg/kg
Irritation:
eye-rabbit; 5mg/severe 5mg/30s/mild
skin-rabbit; 100mg/mild 500mg/24Hr/severe
ACGIH: TLV 5ppm
OSHA: PEL 5ppm

In addition to the acute hazard, the sulfuric acid component (2.8% by wt.) poses a chronic threat in two ways: First, repeated exposure to unspecified concentrations of sulfuric acid has reportedly caused chronic conjunctivitis, tracheobronchitis, stomatitis, and dermatitis. Second, a number of studies have indicated that exposure to strong inorganic acid mists containing sulfuric acid is associated with laryngeal cancer. However, note that neither NTP nor IARC list sulfuric acid as a known or suspected carcinogen.

"Dangerous Properties of Industrial Materials" by N. Irving Sax refers to Phenol (CAS# 108-95-2) as an experimental carcinogen.

SECTION 12: ECOLOGICAL INFORMATION

This material can be an environmental hazard. Keep out of waterways.

SECTION 13: DISPOSAL INFORMATION

Upon disposal Phenolsulfonic Acid may become an EPA hazardous waste due to corrosivity (D002). This material contains 1% Phenol and 2.8% Sulfuric Acid. The phenol and sulfuric acid components have CERCLA reportable quantities of 1000 pounds. Recycle or dispose of in accordance with Federal, State, and Local regulations.

Please note that this information is for Phenolsulfonic Acid 65% in its original form. Any alteration of this material may void this information.

SECTION 14: TRANSPORTATION INFORMATION

Proper shipping name: Phenolsulfonic Acid, Liquid
Hazard class: 8 (Corrosive)
UN no.: UN 1803
DOT/IMO label: Corrosive
Special provisions: B2, N41, and T8
Packaging:
- a. Group: II
- b. authorization: 49 CFR 173.242 and 173.202
- c. exceptions: 49 CFR 173.154

Quantity limitations:
- a. passenger, aircraft or rail: 1.0 liter
- b. cargo only, aircraft: 30.0 liters

Stowage provisions: C, 14

SECTION 15: REGULATORY INFORMATION

TSCA STATUS: On TSCA inventory
CERCLA RQ: 1. Sulfuric Acid: 1000 pounds
2. Phenol: 1000 pounds
SARA TITLE III:
- Section 302 TPQ: No
- Section 304 EHS: No
- Section 311/312: Acute
- Section 313: 1. Sulfuric Acid: Yes (1%)
  2. Phenol: Yes (1%)

RCRA WASTE NUMBER: N/A
California Proposition 65: No
WHIMS: 1. Sulfuric Acid: Yes (1%)

2. Phenol: Yes (1%)

SECTION 16: OTHER INFORMATION

Section(s) revised: All sections revised to a new format including the most up to date information

MSDS date: 01/16/2001
Supersedes date: 5/29/98

The data of this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material. While the data contained herein is based on technical data that Arichem, LLC believes to be reliable, it is intended for use by persons having technical skill and at their own discretion and risk.