1. MATERIAL IDENTIFICATION

Specification number: 38

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

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

DOT number: UN. 3261

Shipping name: Corrosive solids, N.O.S. (See Section 14)

Product name: p-Chlorobenzenesulfonic Acid

CAS name: Benzenesulfonic Acid, 4-chloro

CAS number: 98-66-8

Formula: ClC6H4SO3H

NFPA rating: Health 2; Flammability 1; Reactivity 2

HMIS rating: Health 2; Flammability 1; Reactivity 2;
Personal Protection: H

Synonyms: 4-Chlorobenzenesulfonic Acid, Closylate

2. COMPONENTS

Material	CAS#	% by wt.
p-Chlorobenzenesulfonic Acid	98-66-8	94.5
Sulfuric Acid	7664-93-9	2.8

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

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

Gray Crystalline solid with slight characteristic odor. This material is both toxic and corrosive. Direct contact with corrosive

Arichem, LLC
MATERIAL SAFETY DATA SHEET
p-CHLOROBENZENESULFONIC ACID
Print Date:October 10, 2001

material can result in damage to human tissue. Sulfuric Acid (2.8%) reacts violently with water and explosively

3. HAZARD IDENTIFICATION (cont.)

EMERGENCY OVERVIEW (cont.)

with sodium metal (see Section 10).

POTENTIAL HEALTH EFFECTS:

The health hazards associated with p-Chlorobenzenesulfonic acid are due primarily to its acidity. This is a strong acid mixture consisting of Benzenesulfonic acid, 4-Chloro (94.5% by wt.) and Sulfuric acid (2.8% by wt.). Any exposure of the eyes or mucous membranes or prolonged exposure of the skin to this material will result in the same type damage characteristic of any strong acid.

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

Skin: Avoid prolonged or repetitious 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 of burns and tissue necrosis to the mucosal membranes of the mouth, esophagus, and stomach that they cause to the eyes and skin.

Inhalation: The Sulfuric Acid component is primarily responsible for the inhalation hazard posed by p-Chlorobenzenesulfonic Acid. At room temperatures sulfuric acid gives off toxic and corrosive vapors. Normally, exposure to concentrations of 0.125 to 0.5 ppm is annoying, 1.5 to 2.5 ppm is unpleasant and 10 to 20 ppm is unbearable. However, workers exposed to low concentrations gradually lose their sensitivity to its irritating action. As a result, exposure to greater concentrations becomes possible and with this comes the danger of severe exposure resulting in chemical pneumonitis, loss of teeth and in extreme cases loss of consciousness with serious lung damage.

4. FIRST AID

Eyes or skin contact:

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

IN ALL CASES GET TRAINED MEDICAL HELP IMMEDIATELY.

Note to Physician
p-Chlorobenzenesulfonic Acid is a strong acid mixture consisting of pChlorobenzesulfonic acid (94.5% by wt.) and sulfuric acid (2.8% by wt.). The total acidity of the material is 26.0-28.0 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 eye lids 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

4. FIRST AID (cont.)

glasses of milk or water is indicated. 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.

5. FIRE AND EXPLOSION DATA

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

Flash point: 226oF (108oC)

Flammable limits (air % by vol.):

a. Lower explosive limit: not established
b. Upper explosive limit: not established

Autoignition: not established

Extinguishing media: Dry chemical, carbon dioxide, water fog, regular foam.

Fire and Explosion:

1. Combustion products contain sulfur oxides.
2. Sulfuric acid is a strong oxidizer, and reacts vigorously with water and with sodium metal.

Fire Fighting Instructions:

1. Use self-contained positive pressure breathing apparatus and chemical protective clothing. (Structural fire fighting clothing is not effective for these materials.)
2. Approach fire from upwind.
3. Dike fire control water for later disposal. See Section 13.

6. ACCIDENTAL RELEASE MEASURES

1. Do not touch or walk through spilled material. Stop leak if it can be done safely. KEEP DRY if possible.
2. Small Spills: Take up with a clean, dry shovel and place into

a suitable container for later disposal.
3. Large Spills: Secure spill area. Use same procedure as for small spills. If material is exposed to water, dike around spill and save for later

disposal.
4. Do not leave spill unattended. Wear adequate personal protection while working with spill.

7. HANDLING AND STORAGE

HANDLING:

1. This is a strong acid. Handle with care.
2. It is important that this material be handled in a well ventilated area.
3. In cases where adequate ventilation is not possible use a NOSH/MSHA approved acid/gas air purifying respirator or an air line supplied respirator depending on concentration.
4. Always wear chemical goggles and face shield, acid resistant gloves, and acid resistant protective clothing while handling this material.

STORAGE:

Store below 86oF (30oC).

1.
2. Store in containers with polyethylene liners.
3. Liners should be sealed.
4 Do not puncture containers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

1. The Sulfuric acid component of this material (2.8% by wt.) has a TLV of 1mg/m3. Ventilation capable of maintaining vapor concentrations below this level is recommended.
2. In cases where adequate ventilation is not possible use a NIOSH/MSHA approved acid gas air purifying respirator or an air line supplied respirator depending on concentration.
3. In routine handling of closed containers use chemical goggles and face shield, acid resistant gloves, and acid resistant apron.
4. Where direct contact is possible, use additional chemical resistant protective clothing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (cont.)

Exposure:

1. p-Chlorobenzenesulfonic Acid:
   no exposure limits have been established.
2. Sulfuric Acid:
   OSHA:PEL: 1mg/m3
   TWA: 1mg/m3
   ACIGH:
   STEL: 3mg/m3

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Gray crystalline solid
Odor: Slight characteristic odor
Physical state: Solid
Total Acidity: 26.0-28.0 % by wt.
Vapor pressure (mmHg): Not established
Vapor density (air=1): Not established
Boiling point: 300oF (149oC)
Freezing point: 134.6oF (57oC)
Melting point: 152.6oF (67oC)
Solubility in water: 100% at 77oF (25oC)

10. STABILITY AND REACTIVITY
1. p-Chlorobenzenesulfonic Acid (94.5% by wt.)
a. Instability: Stable
b. Hazardous Polymerization: Will not occur.
c. Incompatibility: Ferrous metals, leather, cotton.
d. Decomposition products: Hydrochloric Acid, sulfur oxide vapors.
2. Sulfuric Acid (2.8% by wt.)
a. Instability: Stable
b. Hazardous Polymerization: Will not occur.
c. Sulfuric acid with water and alcohol yields large amounts of heat.
d. Decomposition products: @ 340oF (170oC) yields highly toxic vapors.

11. TOXICOLOGICAL INFORMATION
1. p-Chlorobenzenesulfonic Acid:
oral-rat LD50 500mg/kg; Toxic (OSHA)
No exposure limits established.
2. Sulfuric Acid
oral-human; LD50 135mg/Kg
oral-rat; LD50 2140mg/Kg
Inhl-human; LCLO 3mg/m3/24W
LCLO 510mg/m3/2Hr
Inhl-rat;

11. TOXICOLOGICAL INFORMATION (cont.)
2. Sulfuric Acid (cont.)
reproductive-rabbit; 6-18 day preg. 20mg/m3
(Caused musculoskeletal problems)
PEL: TWA; 1mg/m3
TWA; 1mg/m3
ACIGH:

3
STEL; 3mg/m
Sulfuric acid poses a potential 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 sulfuric acid, or acid mist in general, is associated with laryngeal cancer. However, note that neither NTP nor IARC list sulfuric acid as a known or suspected carcinogen.

Carcinogenicity: None of the components of this material are listed by NTP, IARC, or OSHA as being carcinogens or as suspected carcinogens. However one author refers to sulfuric acid as a

suspected carcinogen.

12. ECOLOGICAL INFORMATION
None available.

13. DISPOSAL INFORMATION
Upon disposal p-Chlorobenzenesulfonic Acid may become an EPA hazardous waste due to corrosivity (DOO2). Also the Sulfuric acid component (2.8%) has a CERCLA RQ of 1000 lb. Recycle or dispose of in accordance with Federal, State, and Local regulations.
Please note that this information is for p-Chlorobenzenesulfonic Acid in its original form only. Any alteration of this material may void this information.

14. TRANSPORTATION INFORMATION
Proper shipping name: Corrosive solids, n.o.s.
Hazard class: 8
UN no.: UN. 1759
DOT/IMO label: Corrosive
Special provisions: none
Proper shipping name: Corrosive solids, n.o.s.
Hazard class: 8
UN no.: UN. 1759
DOT/IMO label: Corrosive
Special provisions: none

14. TRANSPORTATION INFORMATION
Packaging:
a. Group: II
b. authorization: 49 CFR 173.212 and 173.240
c: exceptions: 173.154
Quantity limitations:

a. passenger, aircraft or rail: 15kg
b. cargo only, aircraft: 50kg
Stowage provisions: A

15. REGULATORY INFORMATION
Toxic oral-rat LD50 500mg/m3
OSHA 29 CFR 1910.1200
TSCA STATUS: On TSCA Inventory
CERCLA RQ:
Sulfuric acid: 1000 pounds
SARA TITLE III:
Section 302 TPQ:
Sulfuric Acid: 1000 pounds
Section 304 EHS: None
Section 311/312: Applicable
Section 313:
Sulfuric Acid: Yes (1%)
RCRA WASTE NUMBER: None
California Proposition 65: None
WHIMS: Yes (1%)

16. OTHER INFORMATION
Section(s) revised: All revised to new format and to include most up to date information

MSDS date: 6/94
Supersedes date: 8/93

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 Sloss Industries Corporation believes to be reliable, it is intended for use by persons having technical skill and at their own discretion and risk.