

## 1. MATERIAL IDENTIFICATION

Specification number: 17A

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 2586

Shipping name: Toluenesulfonic Acid, liquid (See Section 14)  
Product name: Toluenesulfonic Acid 94%  
CAS name: Benzenesulfonic Acid, 4-methyl.  
CAS number: 104-15-4  
Formula: CH<sub>3</sub>C<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>H  
HMIS Rating: Health 3; Flammability 1; Reactivity 1; Personal Protection H  
Synonyms: Methylbenzenesulfonic acid; Tonic acid

## 2. COMPONENTS

Material	CAS#	% by wt.
Toluenesulfonic Acid	104-15-4	94.0
Sulfuric Acid	7664-93-9	1.2

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

## 3. HAZARD IDENTIFICATION

### EMERGENCY OVERVIEW

Straw to grayish white, very thick liquid with slight characteristic odor. Toluenesulfonic acid is a strong acid. It is highly corrosive to human tissue and reacts explosively with acetic anhydride+water (see reactivity Section 10). Direct contact with this material may result in destruction to human tissue. This material is a poison by ingestion. When heated to decomposition it emits toxic vapors of the SO<sub>x</sub> type.

### HEALTH:

The health hazards associated with Toluenesulfonic Acid are due primarily to its acidity. This material is a strong acid mixture made up of Toluenesulfonic Acid (94.0% by wt.), and Sulfuric Acid (1.2% by wt.). Any exposure of the eyes, mucous membranes, or prolonged exposure of the skin to this material may result in destruction of tissue. Also this material is harmful by ingestion.

### 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 hazards posed by Toluenesulfonic Acid 94%. 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 to its irritating action. As a result, exposure to greater concentrations becomes possible and with this comes the danger of severe exposure resulting in loss of teeth, chemical pneumonitis, and in extreme cases 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.

#### **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**

Toluenesulfonic Acid 94.0% is a strong acid mixture consisting of toluenesulfonic acid (94.0% by wt.) and sulfuric acid (1.2% by wt.). The total acidity of this material is 28-29 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 culde-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 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. Sulfuric acid (1.2%) is a strong acidic oxidizer and reacts explosively with sodium and other metals to yield hydrogen gas. At elevated temperatures sulfur oxides vapors evolve.

Flash point: 198°F (92°C)

Flammable limits (air % by vol.):

- a) Lower explosive limit: not established
- b) Upper explosive limit: not established
- c) Autoignition: not established

Extinguishing media:

Small Fires: Dry chemical, carbon dioxide, and foam.

Large Fires: Water fog may be used but do not direct stream directly at material. Use fog to control vapors.

Fire and Explosion:

- 1) Combustion products contain Sulfur Oxides.
- 2) Sulfuric acid (1.2%) is a strong oxidizer, and reacts vigorously with water and explosively with sodium (See Section 10).

Fire Fighting Instructions:

- 1) Evacuate 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.

#### 6. ACCIDENTAL RELEASE MEASURES

Do not touch or walk through spilled material. Stop leak if it can be done safely. Wear adequate personal protection while working with spill. See Section 8.

Small Spills: Take up with sand or other noncombustible, absorbent material and save for later disposal or recycle. See Section 13.

Large Spills: Secure spill area. Dike around spill and save for later disposal or recycle. See Section 13.

Do not leave spill unattended.

#### 7. HANDLING AND STORAGE

Handling:

- 1) This is a strong acid. Handle with care.
- 2) Handle in a well-ventilated area.
- 3) Where adequate ventilation is not possible use a NIOSH/MSHA approved acid gas air purifying respirator or supplied air respirator depending on concentration. See Section 8.
- 4) Always wear chemical goggles and face shield, acid resistant gloves, and acid resistant apron when handling this material.

Storage:

- 1) Store in a cool, dry, well-ventilated location.
- 2) Do not store above 140°F (60°C) for long periods.
- 3) Store separate from combustibles and other reactive materials. See reactivity Section 10.
- 4) Rotate stock. Do not puncture containers.

#### **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

- 1) The sulfuric acid component of this material (1.2%) has a PEL of 1mg/m<sup>3</sup>. Ventilation capable of maintaining vapor concentrations below these levels is recommended.
- 2) Where adequate ventilation is not possible use a NIOSH/MSHA approved acid gas air purifying respirator or supplied air respirator depending on concentration. See Section 8.
- 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.

#### **Exposure:**

1. Toluenesulfonic Acid: No exposure limits established.
2. Sulfuric Acid: OSHA: PEL 1mg/m<sup>3</sup> ACGIH: TLV 1mg/m<sup>3</sup> STEL 3mg/m<sup>3</sup>

#### **9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance: Straw to grayish white liquid  
Odor: Slight characteristic odor  
Physical state: Liquid  
Total acidity: 28.0 to 29.0 percent by weight  
Vapor pressure (mmHg): not established  
Vapor density (air=1): not established  
Boiling point: 356°F (180°C)  
Melting point: 73°F (23°C)  
Solubility in water: 0.67g/ml at 77°F (25°C)  
Percent volatile by volume: not established  
Specific gravity (H<sub>2</sub>O=1): not established

#### **10. STABILITY AND REACTIVITY**

1. Toluenesulfonic Acid (94.0% by wt.)
  - a) Stability: Stable
  - b) Hazardous Polymerization: Will not occur.
  - c) Incompatibility: Ferrous metals, leather, cotton. Reacts explosively with acetic anhydride+water.
  - d) Decomposition Products: SO<sub>x</sub> vapors.
2. Sulfuric Acid (1.2% by wt.)
  - a) Stability: Stable
  - b) Hazardous Polymerization: Will not occur.
  - c) May react with water, bases, organic material, halogen, metals, metal acetylides, oxides and hydrides, strong oxidizing agents (examples include chlorates and permanganates) and reducing agents and many other reactive substances. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, and carbides. Decomposition products: @ 340°F (171°C) yields highly toxic vapors.

#### **11. TOXICOLOGICAL INFORMATION**

- 1) Toluenesulfonic Acid: oral-rat; LD50: 2480mg/Kg oral-mouse; LD50: 400mg/Kg. No established exposure limits.

- 2) Sulfuric Acid: inhalation-human; TCLo: 3mg/m<sup>3</sup>/24W  
unreported-man; LDLo: 135mg/kg oral-rat; LD50: 2140mg/kg  
inhalation-rat; LC50: 510mg/m<sup>3</sup> 1mg/m<sup>3</sup> OSHA:PEL TLV 1mg/m<sup>3</sup>  
ACGIH: 3mg/m<sup>3</sup> STEL

In addition to the acute dangers of Toluenesulfonic acid, the sulfuric acid component (1.2% by wt.) poses a chronic threat in two ways: First, repeated exposure to unspecified concentrations of sulfuric acid has caused chronic conjunctivitis, tracheobronchitis, stomatitis and dermatitis. Second, a number of studies have indicated that exposure is associated with laryngeal cancer. However, note that neither NTP or IARC list sulfuric acid as a known or suspected carcinogen.

#### 12. ECOLOGICAL INFORMATION

Environmental hazard. Keep out of waterways.

#### 13. DISPOSAL INFORMATION

Upon disposal Toluenesulfonic Acid 94% is an EPA hazardous waste due to corrosivity (D002). This material contains 1.2% by weight of Sulfuric Acid. Sulfuric acid has a CERCLA reportable quantity of 1000 pounds. Recycle or dispose of in accordance with Federal, State, and Local regulations.

Please note that this information is for Toluenesulfonic Acid in its original form. Any alterations made to this material may void this information.

#### 14. TRANSPORTATION INFORMATION

Proper shipping name: Toluenesulfonic Acid, liquid

Hazard class: 8 (Corrosive)

UN no.: UN 2586

DOT/IMO label: Corrosive

Special provisions: T8 (49CFR)

Packaging:

a. Group: III

b. authorization: 49 CFR 173.203 or .241

c. exceptions: 49 CFR 173.154

Quantity limitations:

a. passenger, aircraft or rail: 5 liters

b. cargo only, aircraft: 60 liters

Stowage provisions: B, 9

Reportable quantity:

Sulfuric acid: 1000 pounds

#### 15. REGULATORY INFORMATION

TSCA STATUS: On TSCA Inventory

CERCLA RQ:

a. Toluenesulfonic acid: None

b. Sulfuric Acid: 1000 pounds

SARA TITLE III:

Section 302 TPQ:

Sulfuric Acid 1000 pounds

Section 304 EHS: None

Section 311/312: Acute

Section 313:

Sulfuric Acid Yes (1%)

RCRA WASTE NUMBER: None

California Proposition 65: None

WHIMS: Sulfuric Acid Listed (1%).

**16. OTHER INFORMATION**

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

MSDS date: 11/06

Supersedes date: 12/93

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