Material Safety Data Sheet
p-Toluenesulfonic acid monohydrate

MSDS# 01968

Section 1 - Chemical Product and Company Identification

MSDS Name: p-Toluenesulfonic acid monohydrate

Catalog Numbers: AC139020000, AC139020025, AC139020050, AC139021000, AC139025000, AC171780000

Synonyms: Toluene-4-sulfonic acid; PTSA.

Company Identification: Acros Organics BVBA
Janssen Pharmaceuticaalaaan 3a
2440 Geel, Belgium

For information in Europe, call: +32 14 57 52 99
Emergency Number, Europe: 201-796-7100
CHEMTREC Phone Number, Europe: 703-527-3887

Section 2 - Composition, Information on Ingredients

Risk Phrases:
CAS#: 6192-52-5
Chemical Name: p-Toluenesulfonic acid monohydrate
%: 96.5+
EINECS#: unlisted

Text for R-phrases: see Section 16

Hazard Symbols: C

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Danger! Hygroscopic (absorbs moisture from the air). Causes burns by all exposure routes. Target Organs: Respiratory system, eyes, skin.

Potential Health Effects
Eye: Causes eye burns.
Skin: Causes skin burns. May be harmful if absorbed through the skin.
Ingestion: Causes gastrointestinal tract burns. May be harmful if swallowed.
Inhalation: Causes chemical burns to the respiratory tract. May be harmful if inhaled.
Chronic: No information found.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: Do not induce vomiting. Get medical aid immediately. Call a poison control center.
Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Notes to Physician:

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Autoignition Temperature: 350 deg C (662.00 deg F)
Flash Point: 180 deg C (356.00 deg F)

Explosion Limits: Not available

Explosion Limits: Not available

NFPA Rating: health: 3; flammability: 1; instability: 1;

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Wear a self-contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Avoid generating dusty conditions. Provide ventilation. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale.
Storage: Store in a cool, dry place. Store in a tightly closed container. Corrosives area.

Section 8 - Exposure Controls, Personal Protection

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH</th>
<th>NIOSH</th>
<th>OSHA - Final PELs</th>
</tr>
</thead>
<tbody>
<tr>
<td>p-Toluenesulfonic acid anhydrous</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
<tr>
<td>p-Toluenesulfonic acid monohydrate</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
</tr>
</tbody>
</table>

OSHA Vacated PELs: p-Toluenesulfonic acid anhydrous: None listed p-Toluenesulfonic acid monohydrate: None listed

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Crystals
Color: white to off-white - white to pink
Odor: weak odor
pH: Not applicable
Vapor Pressure: Not available
Vapor Density: Not available
Evaporation Rate: Not applicable.
Viscosity: Not available
Boiling Point: Not available
Freezing/Melting Point: 103 - 106 deg C
Decomposition Temperature: Not available
Solubility in water: Soluble
Specific Gravity/Density: Not available.
Molecular Formula: C7H8O3S.H2O
Molecular Weight: 190.22

Section 10 - Stability and Reactivity

Chemical Stability: Hygroscopic: absorbs moisture or water from the air.
Conditions to Avoid: incompatible materials, dust generation, excess heat, exposure to moist air or water.
Incompatibilities with Other Materials Metals, strong oxidizing agents, strong bases.
Hazardous Decomposition Products Carbon monoxide, oxides of sulfur, carbon dioxide.
Hazardous Polymerization Will not occur.

Section 11 - Toxicological Information

RTECS#: CAS# 104-15-4: XT6300000
CAS# 6192-52-5: DB7164000
RTECS: CAS# 104-15-4: Oral, rat: LD50 = 2480 mg/kg;

RTECS:
CAS# 6192-52-5: Oral, mouse: LD50 = 1683 mg/kg;
Oral, rat: LD50 = 2570 mg/kg;

Other: Skin absorption LD50 guinea pig: no evidence at 1.0 g/kg., Skin irritation, guinea pig: Moderate., Repeated skin application, guinea pig: Moderate exacerbation., Skin sensitization, guinea pig: Did not sensitize any animals tested., Eye irritation: Severe, (Eastman Kodak Company)
p-Toluenesulfonic acid anhydrous - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Carcinogenicity: p-Toluenesulfonic acid monohydrate - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: > 100 mg/l; 96 hr; LC50

Other: Do not empty into drains.

Section 13 - Disposal Considerations
Dispose of in a manner consistent with federal, state, and local regulations.
Section 14 - Transport Information

US DOT
Shipping Name: ARYL SULFONIC ACIDS, SOLID
Hazard Class: 8
UN Number: UN2585
Packing Group: III
Canada TDG
Shipping Name: ARYL SULPHONIC ACIDS, SOLID
Hazard Class: 8
UN Number: UN2585
Packing Group: III

Section 15 - Regulatory Information

European/International Regulations
European Labeling in Accordance with EC Directives
   Hazard Symbols: C
   Risk Phrases:
      R 34 Causes burns.
   Safety Phrases:
      S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
      S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
      S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)
   CAS# 104-15-4: 1
   CAS# 6192-52-5: 1

Canada
   CAS# 104-15-4 is listed on Canada's DSL List
   Canadian WHMIS Classifications: E
   This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.
   CAS# 104-15-4 is not listed on Canada's Ingredient Disclosure List.
   CAS# 6192-52-5 is not listed on Canada's Ingredient Disclosure List.

US Federal
   TSCA
      CAS# 104-15-4 is listed on the TSCA Inventory.
      CAS# 6192-52-5 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form in on the Inventory (40CFR720.3(u)(2)).

Section 16 - Other Information

MSDS Creation Date: 6/24/1999
Revision #8 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantibility or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.