Material Safety Data Sheet
Trifluoromethanesulfonic acid, 99%

MSDS# 29558

Section 1 - Chemical Product and Company Identification

MSDS Name: Trifluoromethanesulfonic acid, 99%
Catalog Numbers: AC169890000, AC169890010, AC169890100, AC169890500, AC169891000
Synonyms: Triflic acid

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

Company Identification: (USA)
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

For information in the US, call: 800-ACROS-01
For information in Europe, call: +32 14 57 52 11
Emergency Number, Europe: +32 14 57 52 99
CHEMTREC Phone Number, US: 800-424-9300
CHEMTREC Phone Number, Europe: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#: 1493-13-6
Chemical Name: Trifluoromethanesulfonic acid
%: 99%
EINECS#: 216-087-5

Hazard Symbols: C
Risk Phrases: 22 35

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Danger! Corrosive. Hygroscopic (absorbs moisture from the air). The toxicological properties of this material have not been fully investigated. Harmful if swallowed. Causes eye and skin burns. Causes digestive and respiratory tract burns. Target Organs: Respiratory system, eyes, skin.

Potential Health Effects
Eye: Causes severe eye burns. May cause blindness.
Skin: Causes severe burns with delayed tissue destruction.
Ingestion: Harmful if swallowed. Causes gastrointestinal tract burns. May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing.
Inhalation: shortness of breath and pulmonary edema. Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.
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. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately. Wash mouth out with water.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

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. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.

Autoignition Temperature: Not available

Flash Point: Not available

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: health: 3; flammability: 0; instability: 1;

Section 6 - Accidental Release Measures

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

Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Do not breathe dust, mist, or vapor. Do not get in eyes, on skin, or on clothing.


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>Trifluoromethanesulfonic acid</td>
<td>none listed</td>
<td>none listed</td>
<td>none listed</td>
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</tbody>
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OSHA Vacated PELs: Trifluoromethanesulfonic acid: None listed

Engineering Controls:
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

Exposure Limits

Personal Protective Equipment

Eyes: Wear chemical splash goggles and face shield.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a Respirators: NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Section 9 - Physical and Chemical Properties

Physical State: Liquid
Color: clear very light yellow
Odor: Strong pungent odor.
pH: Not available
Vapor Pressure: 10 hPa @ 55 deg C
Vapor Density: Not available
Evaporation Rate: Not available
Viscosity: 2.87 cP 25 deg C
Boiling Point: 162 deg C @ 760.00mm Hg (323.60°F)
Freezing/Melting Point: -40 deg C (-40.00°F)
Decomposition Temperature: Not available
Solubility in water: soluble
Specific Gravity/Density: 1.6960g/cm3
Molecular Formula: CHF3O3S
Molecular Weight: 150.07

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Incompatible materials, excess heat, exposure to moist air or water.
Incompatibilities with Other Materials: Not available
Hazardous Decomposition Products: Carbon monoxide, oxides of sulfur, carbon dioxide, hydrogen fluoride gas.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#: CAS# 1493-13-6: None listed
LD50/LC50: RTECS: Not available.
Carcinogenicity: Trifluoromethanesulfonic acid - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Other: The toxicological properties have not been fully investigated.

Section 12 - Ecological Information

Ecotoxicity: Not available

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
Hazard Class: 8
UN Number: UN3265
Packing Group: II
Canada TDG
Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:

Section 15 - Regulatory Information

European/International Regulations
European Labeling in Accordance with EC Directives
Hazard Symbols: C
Risk Phrases:
R 22 Harmful if swallowed.
R 35 Causes severe 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# 1493-13-6: 2

Canada
- CAS# 1493-13-6 is listed on Canada's DSL List
- Canadian WHMIS Classifications: D1B, 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# 1493-13-6 is not listed on Canada's Ingredient Disclosure List.

US Federal
- TSCA
  - CAS# 1493-13-6 is listed on the TSCA Inventory.

Section 16 - Other Information
- MSDS Creation Date: 9/02/1997
- Revision #5 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.

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