Section 1 - Product and Company Information

Product Name: TRIFLUOROMETHANESULFONIC ACID FREE ACID
Product Number: T1394
Brand: SIGMA
Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: SAINT LOUIS MO 63103 US
Technical Phone: 314 771 5765
Emergency Phone: 414 273 3850 Ext. 5996
Fax: 800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name: TRIFLUOROMETHANESULFONIC ACID
CAS #: 1493-13-6
SARA 313: No

Formula: CHF3O3S

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Corrosive.
Harmful in contact with skin and if swallowed. Causes severe burns.

HMIS RATING
HEALTH: 3
FLAMMABILITY: 0
REACTIVITY: 1

NFPA RATING
HEALTH: 3
FLAMMABILITY: 0
REACTIVITY: 1

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.
EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure. Do not use polyethylene or polypropylene tubing. Use only tygon tubing.

STORAGE
Suitable: Keep tightly closed.
Store at -20°C

SPECIAL REQUIREMENTS
Store under inert gas.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.  
Other: Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES
Wash contaminated clothing before reuse. Discard contaminated  
shoes. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
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<tbody>
<tr>
<td>Molecular Weight</td>
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<tr>
<td>pH</td>
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<tr>
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<td>MP/MP Range</td>
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<td>Solubility</td>
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<td>Other Solvents: ETHANOL, ETHER</td>
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</table>

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.  
Materials to Avoid: Strong oxidizing agents, Strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide,  
Sulfur oxides, Hydrogen fluoride.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE
Skin Contact: Causes burns.

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Skin Absorption: Harmful if absorbed through skin.
Eye Contact: Causes burns.
Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: Harmful if swallowed.

SIGNS AND SYMPTOMS OF EXPOSURE
Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.
Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.
Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

TOXICITY DATA
Skin
Rat

* LD50
Oral
Rat
1,605 mg/kg
LD50

IRRITATION DATA
Skin
Rabbit
Remarks: Moderate irritation effect
Skin
Human
Remarks: Corrosive.
Eyes
Remarks: Severe irritation effect

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS
Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: > 2,000 mg/l

ELIMINATION
Classification: Not significantly biodegradable.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Corrosive liquid, acidic, organic, n.o.s.
UN#: 3265  
Class: 8  
Packing Group: Packing Group I  
Hazard Label: Corrosive  
PIH: Not PIH

IATA  
Proper Shipping Name: Corrosive liquid, acidic, organic, n.o.s.  
IATA UN Number: 3265  
Hazard Class: 8  
Packing Group: I

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION  
Symbol of Danger: C  
Indication of Danger: Corrosive.  
R: 21/22 35  
Risk Statements: Harmful in contact with skin and if swallowed. Causes severe burns.  
S: 26 36/37/39 45  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).  

US CLASSIFICATION AND LABEL TEXT  
Indication of Danger: Corrosive.  
Risk Statements: Harmful in contact with skin and if swallowed. Causes severe burns.  
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).  

UNITED STATES REGULATORY INFORMATION  
SARA LISTED: No

CANADA REGULATORY INFORMATION  
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.  
DSL: Yes  
NDSL: No

Section 16 - Other Information

DISCLAIMER  
For R&D use only. Not for drug, household or other uses.

WARRANTY  
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice.