1. PRODUCT AND COMPANY IDENTIFICATION

Product Name
Trifluoroacetic acid

Cat No.
AC139720000; AC139720010; AC139720025; AC139720250; AC139721000; AC139725000

Synonyms
TFA; Trifluoroethanoic acid; Perfluoroacetic acid

Recommended Use
Laboratory chemicals

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
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
Emergency Number, US: 201-796-7100

CHEMTREC Phone Number, US: 800-424-9300
CHEMTREC Phone Number, Europe: 703-527-3887

2. HAZARDS IDENTIFICATION

DANGER!
Causes severe burns by all exposure routes. Harmful by inhalation. Inhalation may cause central nervous system effects. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Hygroscopic.

Emergency Overview

Appearance Clear, Colorless
Physical State Liquid
Odor pungent

Target Organs
Eyes, Respiratory system, Skin, Central nervous system (CNS), Liver, Kidney

Potential Health Effects
Acute Effects  
Principle Routes of Exposure  

**Eyes**  
Causes severe burns.

**Skin**  
Causes severe burns. May be harmful in contact with skin.

**Inhalation**  
Causes severe burns. Harmful by inhalation. Inhalation may cause central nervous system effects.

**Ingestion**  
Causes severe burns. May be harmful if swallowed.

**Chronic Effects**  
Experiments have shown reproductive toxicity effects on laboratory animals. May cause adverse liver effects. May cause adverse kidney effects.

See Section 11 for additional Toxicological information.

**Aggravated Medical Conditions**  
No information available.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Haz/Non-haz</th>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trifluoroacetic acid</td>
<td>76-05-1</td>
<td>99</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

**Eye Contact**  
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

**Skin Contact**  
Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Inhalation**  
Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

**Ingestion**  
Do not induce vomiting. Call a physician or Poison Control Center immediately.

**Notes to Physician**  
Treat symptomatically.

### 5. FIRE-FIGHTING MEASURES

**Flash Point**  
No information available.

**Method**  
No information available.

**Autoignition Temperature**  
No information available.

**Explosion Limits**  
No data available

**Upper**  
No data available

**Lower**  
No data available

**Suitable Extinguishing Media**  
CO₂, dry chemical, dry sand, alcohol-resistant foam.

**Unsuitable Extinguishing Media**  
No information available.

**Hazardous Combustion Products**  
No information available.

**Sensitivity to mechanical impact**  
No information available.
Sensitivity to static discharge
No information available.

Specific Hazards Arising from the Chemical
Corrosive Material. Causes severe burns by all exposure routes.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

Environmental Precautions
Should not be released into the environment.

Methods for Containment and Clean Up
Soak up with inert absorbent material. Keep in suitable and closed containers for disposal.

7. HANDLING AND STORAGE

Handling
Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors/dust. Do not ingest.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures
Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

Eye/face Protection
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 and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NiOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State
Liquid

Appearance
Clear, Colorless

Odor
Pungent

Odor Threshold
No information available.

pH
2 100 g/L aq.sol.
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor Pressure</td>
<td>107 mbar @ 25 °C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>3.9</td>
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<tr>
<td>Viscosity</td>
<td>0.813 cP at 25 °C</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>72°C / 161.6°F@ 760 mmHg</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>-15°C / 5°F</td>
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<tr>
<td>Decomposition temperature °C</td>
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<tr>
<td>Flash Point</td>
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</tr>
<tr>
<td>Evaporation Rate</td>
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<tr>
<td>Specific Gravity</td>
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</tr>
<tr>
<td>Solubility</td>
<td>Miscible with water</td>
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<tr>
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<tr>
<td>Molecular Weight</td>
<td>114.02</td>
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<tr>
<td>Molecular Formula</td>
<td>C2 H F3 O2</td>
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</table>

10. STABILITY AND REACTIVITY

- **Stability**: Hygroscopic.
- **Conditions to Avoid**: Incompatible products. Exposure to moist air or water. Exposure to light. Excess heat.
- **Incompatible Materials**: Strong oxidizing agents, Reducing agents, Acids, Strong bases, Metals, Amines
- **Hazardous Decomposition Products**: Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen fluoride
- **Hazardous Polymerization**: Hazardous polymerization does not occur
- **Hazardous Reactions**: None under normal processing.

11. TOXICOLOGICAL INFORMATION

- **Acute Toxicity**: No acute toxicity information is available for this product
- **Component Information**
- **Irritation**: Causes severe burns by all exposure routes
- **Toxicologically Synergistic Products**: No information available.
- **Chronic Toxicity**
- **Carcinogenicity**: There are no known carcinogenic chemicals in this product
- **Sensitization**: No information available.
- **Mutagenic Effects**: No information available.
Reproductive Effects
Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects
Developmental effects have occurred in experimental animals.

Teratogenicity
No information available.

Other Adverse Effects
The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

Endocrine Disruptor Information
No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity
Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Persistence and Degradability
No information available

Bioaccumulation/ Accumulation
No information available

Mobility
No information available

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. TRANSPORT INFORMATION

DOT
UN-No UN2699
Proper Shipping Name TRIFLUOROACETIC ACID
Hazard Class 8
Packing Group I

TDG
UN-No UN2699
Proper Shipping Name TRIFLUOROACETIC ACID
Hazard Class 8
Packing Group I

IATA
UN-No 2699
Proper Shipping Name TRIFLUOROACETIC ACID
Hazard Class 8
14. TRANSPORT INFORMATION

| Packing Group | I |

IMDG/IMO

<table>
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<tr>
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<td>Proper Shipping Name</td>
<td>TRIFLUOROACETIC ACID</td>
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<td>Hazard Class</td>
<td>8</td>
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<tr>
<td>Packing Group</td>
<td>I</td>
</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

All of the components in the product are on the following Inventory lists:

<table>
<thead>
<tr>
<th>International Inventories</th>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
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<tr>
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<td>Trifluoracetic acid</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>200-929-3</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-34233</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- X - Listed
- E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
- F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
- N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
- P - Indicates a commenced PMN substance
- R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
- S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
- T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
- XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
- Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
- Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313
Not applicable

SARA 311/312 Hazardous Categorization

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Acute Health Hazard</th>
<th>Chronic Health Hazard</th>
<th>Fire Hazard</th>
<th>Sudden Release of Pressure Hazard</th>
<th>Reactive Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Clean Water Act
Not applicable
Clean Air Act
Not applicable

OSHA
Not applicable

CERCLA
Not Applicable

California Proposition 65
This product does not contain any Proposition 65 chemicals.

State Right-to-Know

<table>
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<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
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<tbody>
<tr>
<td>Trifluoroacetic acid</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>-</td>
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</tr>
</tbody>
</table>

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade
No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
E Corrosive material

16. OTHER INFORMATION

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Tel: (412) 490-8929