

## SAFETY DATA SHEET

Creation Date 26-Sep-2013

Revision Date 28-Dec-2021

Revision Number 7

### 1. Identification

**Product Name** 2,2,2-Trifluoroethyl trifluoromethanesulfonate

**Cat No. :** AC454970000; AC454970010; AC454970050; AC454970250

**CAS No** 6226-25-1  
**Synonyms** TFOL-Tf

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.

#### Details of the supplier of the safety data sheet

##### Company

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

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

**Emergency Telephone Number** For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) identification

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

|  |              |
|--|--------------|
| Acute oral toxicity                              | Category 4   |
| Acute dermal toxicity                            | Category 4   |
| Acute Inhalation Toxicity - Vapors               | Category 4   |
| Skin Corrosion/Irritation                        | Category 1 B |
| Serious Eye Damage/Eye Irritation                | Category 1   |
| Specific target organ toxicity (single exposure) | Category 3   |
| Target Organs - Respiratory system.              |              |

#### Label Elements

**Signal Word**  
Danger

**Hazard Statements**

Causes severe skin burns and eye damage

May cause respiratory irritation

Harmful if swallowed, in contact with skin or if inhaled

**Precautionary Statements****Prevention**

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Wear protective gloves/protective clothing/eye protection/face protection

Use only outdoors or in a well-ventilated area

Do not breathe dust/fume/gas/mist/vapors/spray

**Response**

Immediately call a POISON CENTER or doctor/physician

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

**Skin**

Wash contaminated clothing before reuse

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

**Ingestion**

Rinse mouth

Do NOT induce vomiting

**Storage**

Store locked up

Store in a well-ventilated place. Keep container tightly closed

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

None identified

### 3. Composition/Information on Ingredients

| Component | CAS No    | Weight % |
|-----------|-----------|----------|
| TFOL-TF   | 6226-25-1 | >95      |

### 4. First-aid measures

**General Advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**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. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.

|  |  |
|--|--|
| <b>Inhalation</b>                          | If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately. |
| <b>Ingestion</b>                           | Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.   |
| <b>Most important symptoms and effects</b> | Causes burns by all exposure routes. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation                                |
| <b>Notes to Physician</b>                  | Treat symptomatically  |

## 5. Fire-fighting measures

|   |   |
|---|---|
| <b>Suitable Extinguishing Media</b>     | CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam. |
| <b>Unsuitable Extinguishing Media</b>   | No information available  |
| <b>Flash Point</b>                      | No information available  |
| <b>Method -</b>                         | No information available  |
| <b>Autoignition Temperature</b>         | No information available  |
| <b>Explosion Limits</b>                 |   |
| <b>Upper</b>                            | No data available   |
| <b>Lower</b>                            | No data available   |
| <b>Sensitivity to Mechanical Impact</b> | No information available  |
| <b>Sensitivity to Static Discharge</b>  | No information available  |

### Specific Hazards Arising from the Chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

### Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Sulfur oxides. Hydrogen fluoride.

### 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.

### NFPA

|               |                     |                    |                         |
|---------------|---------------------|--------------------|-------------------------|
| <b>Health</b> | <b>Flammability</b> | <b>Instability</b> | <b>Physical hazards</b> |
| 3             | 1                   | 0                  | N/A                     |

## 6. Accidental release measures

|                                  |   |
|----------------------------------|---|
| <b>Personal Precautions</b>      | Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. |
| <b>Environmental Precautions</b> | Should not be released into the environment. See Section 12 for additional Ecological Information.  |

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

## 7. Handling and storage

|                 |   |
|-----------------|---|
| <b>Handling</b> | Do not get in eyes, on skin, or on clothing. Wear personal protective equipment/face protection. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. |
|-----------------|---|

**Storage.** Keep containers tightly closed in a dry, cool and well-ventilated place. Store under an inert atmosphere. Keep refrigerated. Corrosives area. Incompatible Materials. Strong oxidizing agents. Strong acids.

## 8. Exposure controls / personal protection

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

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

### 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.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

|  |  |
|--|--|
| Physical State                         | Liquid                                 |
| Appearance                             | Colourless                             |
| Odor                                   | No information available               |
| Odor Threshold                         | No information available               |
| pH                                     | No information available               |
| Melting Point/Range                    | No data available                      |
| Boiling Point/Range                    | 89 - 91 °C / 192.2 - 195.8 °F 740 mmHg |
| Flash Point                            | No information available               |
| Evaporation Rate                       | No information available               |
| Flammability (solid,gas)               | Not applicable                         |
| Flammability or explosive limits       |  |
| Upper                                  | No data available                      |
| Lower                                  | No data available                      |
| Vapor Pressure                         | No information available               |
| Vapor Density                          | No information available               |
| Specific Gravity                       | 1.61                                   |
| Solubility                             | No information available               |
| Partition coefficient; n-octanol/water | No data available                      |
| Autoignition Temperature               | No information available               |
| Decomposition Temperature              | No information available               |
| Viscosity                              | No information available               |
| Molecular Formula                      | C3 H2 F6 O3 S                          |
| Molecular Weight                       | 232.1                                  |

## 10. Stability and reactivity

**Reactive Hazard** None known, based on information available

**Stability** Moisture sensitive. Air sensitive.

|   |   |
|---|---|
| <b>Conditions to Avoid</b>              | Incompatible products. Excess heat. Exposure to air. Exposure to moisture.                |
| <b>Incompatible Materials</b>           | Strong oxidizing agents, Strong acids   |
| <b>Hazardous Decomposition Products</b> | Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Sulfur oxides, Hydrogen fluoride |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization does not occur.  |
| <b>Hazardous Reactions</b>              | None under normal processing.   |

## 11. Toxicological information

### Acute Toxicity

#### Product Information Component Information

| Component | LD50 Oral  | LD50 Dermal | LC50 Inhalation |
|-----------|------------|-------------|-----------------|
| TFOL-TF   | Not listed | Not listed  | 876 ppm/6 H     |

**Toxicologically Synergistic Products** No information available

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                        |  |
|------------------------|--|
| <b>Irritation</b>      | Causes burns by all exposure routes  |
| <b>Sensitization</b>   | No information available   |
| <b>Carcinogenicity</b> | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component | CAS No    | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|-----------|-----------|------------|------------|------------|------------|------------|
| TFOL-TF   | 6226-25-1 | Not listed | Not listed | Not listed | Not listed | Not listed |

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Respiratory system  
**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains.

**Persistence and Degradability** Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its volatility.

### 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** UN2927  
**Proper Shipping Name** Toxic liquid, corrosive, organic, n.o.s.  
**Technical Name** (2,2,2-Trifluoroethyl trifluoromethanesulfonate )  
**Hazard Class** 6.1  
**Subsidiary Hazard Class** 8  
**Packing Group** II

#### TDG

**UN-No** UN2927  
**Proper Shipping Name** TOXIC LIQUIDS, CORROSIVE, ORGANIC, N.O.S.  
**Hazard Class** 6.1  
**Subsidiary Hazard Class** 8  
**Packing Group** II

#### IATA

**UN-No** UN2927  
**Proper Shipping Name** TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.\*  
**Hazard Class** 6.1  
**Subsidiary Hazard Class** 8  
**Packing Group** II

#### IMDG/IMO

**UN-No** UN2927  
**Proper Shipping Name** TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S.  
**Hazard Class** 6.1  
**Subsidiary Hazard Class** 8  
**Packing Group** II

### 15. Regulatory information

#### United States of America Inventory

| Component | CAS No    | TSCA | TSCA Inventory notification -<br>Active-Inactive | TSCA - EPA Regulatory<br>Flags |
|-----------|-----------|------|--|--------------------------------|
| TFOL-TF   | 6226-25-1 | -    | -  | -                              |

#### **Legend:**

**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

**TSCA 12(b)** - Notices of Export Not applicable

#### International Inventories

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component | CAS No    | DSL | NDL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|-----------|-----------|-----|-----|--------|-------|------|------|------|-------|------|
| TFOL-TF   | 6226-25-1 | -   | -   | -      | -     | -    | X    | -    | -     | -    |

**KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

#### U.S. Federal Regulations

**SARA 313** Not applicable

**SARA 311/312 Hazard Categories** See section 2 for more information

**CWA (Clean Water Act)** Not applicable

**Clean Air Act** Not applicable

**OSHA - Occupational Safety and Health Administration** Not applicable

**CERCLA** Not applicable

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

**U.S. State Right-to-Know Regulations** Not applicable

**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

**Authorisation/Restrictions according to EU REACH**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

| Component | CAS No    | OECD HPV       | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|-----------|-----------|----------------|------------------------------|---------------------------|--|
| TFOL-TF   | 6226-25-1 | Not applicable | Not applicable               | Not applicable            | Not applicable                             |

| Component | CAS No    | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|-----------|-----------|---|--|----------------------------|------------------------------------|
| TFOL-TF   | 6226-25-1 | Not applicable  | Not applicable   | Not applicable             | Not applicable                     |

## 16. Other information

**Prepared By** Regulatory Affairs  
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**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**