## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier
- **Product form:** Substance
- **Physical state:** Liquid
- **Substance name:** TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE
- **Product code:** SIT8620.0
- **Formula:** \( \text{C}_4\text{H}_9\text{F}_3\text{O}_3\text{S}_{\text{Si}} \)
- **Synonyms:**
  - TRIMETHYLSILYLTRIFLATE
  - TRIMETHYLSILANOL TRIFLUOROMETHANESULFONATE
  - TRIFLUOROMETHANESULFONIC ACID TRIMETHYLSILYL ESTER
- **Chemical family:** ORGANOSILANE

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### 1.2.1. Relevant identified uses
- **Use of the substance/mixture:** Chemical intermediate

#### 1.2.2. Uses advised against
- **No additional information available**

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

**GELEST, INC.**
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

**GELEST INC.**
Fritz-Klatte-Strasse 8
65933 Frankfurt
Germany
T +49 (0) 69 3535106 - F +49 (0) 69 3535106-501 - (M-F): 8:00 AM - 4:00 PM
info@geleste.com - www.geleste.com

### 1.4. Emergency telephone number
- **Emergency number:** CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

**Classification according to Regulation (EC) No. 1272/2008 [CLP]**
- Flammable liquids, Category 3: H226
- Skin corrosion/irritation, Category 1B: H314
- Serious eye damage/eye irritation, Category 1: H318

**Adverse physicochemical, human health and environmental effects**
- **No additional information available**

### 2.2. Label elements

**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**
- **Hazard pictograms (CLP):**
  - GHS02
  - GHS05
- **Signal word (CLP):** Danger
- **Hazard statements (CLP):** H226 - Flammable liquid and vapour.
TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE
Safety Data Sheet

Precautionary statements (CLP)

H314 - Causes severe skin burns and eye damage.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P264 - Wash hands thoroughly after handling.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P240 - Ground/bond container and receiving equipment.
P310 - Immediately call a POISON CENTER or doctor/physician
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Other hazards

Other hazards not contributing to the classification: Material will generate trifluoromethanesulfonic acid on contact with moisture on skin eyes or mucous membranes.

SECTION 3: Composition/information on ingredients

3.1. Substances

| Substance type | Mono-constituent |
| Name | TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE |
| CAS-No. | 27607-77-8 |
| EC-No. | 248-565-4 |

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
| Methanesulfonic acid, trifluoro-, trimethylsilyl ester | (CAS-No.) 27607-77-8 (EC-No.) 248-565-4 | 97 - 100 | Flam. Liq. 3, H226 Skin Corr. 1B, H314 Eye Dam. 1, H318 |

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact: Wash with plenty of water/…. Get immediate medical advice/attention.

First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid measures after ingestion: Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects: Causes severe skin burns and eye damage.

Symptoms/effects after inhalation: May cause irritation to the respiratory tract. Overexposure may cause: Cough. Headache. Nausea.

Symptoms/effects after skin contact: Causes (severe) skin burns.

Symptoms/effects after eye contact: Causes serious eye damage.

Symptoms/effects after ingestion: May be harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media


Unsuitable extinguishing media: Do not use straight streams.

5.2. Special hazards arising from the substance or mixture

Fire hazard: Flammable liquid and vapour. Irritating fumes of trifluoromethanesulfonic acid and organic acid vapors may develop when material is exposed to water or open flame.

Explosion hazard: May form flammable/explosive vapour-air mixture.
5.3. Advice for firefighters

Firefighting instructions: Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapour and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures: Eliminate ignition sources. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

Protective equipment: Wear protective equipment as described in Section 8.

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for cleaning up: Clean up any spills as soon as possible, using an absorbent material to collect it. Use only non-sparking tools.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Avoid all eye and skin contact and do not breathe vapour and mist. Take precautionary measures against static discharge. Containers and transfer lines require grounding during use. Provide good ventilation in process area to prevent formation of vapour. Use only non-sparking tools.

Hygiene measures: Wash contaminated clothing before reuse. Wash hands thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical/ventilating/lighting equipment.

Storage conditions: Keep container tightly closed. Keep in a cool place. Store locked up.


Storage area: Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Methanesulfonic acid, trifluoro-, trimethylsilyl ester (27607-77-8)

Italy - Portugal - USA ACGIH  ACGIH TWA (ppm)  < 3 ppm (Gelest Recommendation)

8.2. Exposure controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:

Neoprene or nitrile rubber gloves

Eye protection:

Chemical goggles or face shield. Contact lenses should not be worn
Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified combination organic vapor/acid gas (yellow cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
Physical state: Liquid
Appearance: Clear liquid.
Molecular mass: 222.25 g/mol
Colour: Straw.
Odour: Acrid.
Odour threshold: No data available
Refractive index: 1.36
pH: No data available
Relative evaporation rate (butylacetate=1): No data available
Melting point: No data available
Freezing point: < 0 °C
Boiling point: 140 - 141 °C
Flash point: 40 °C
Auto-ignition temperature: 405 °C
Decomposition temperature: No data available
Flammability (solid, gas): Flammable liquid and vapour.
Vapour pressure: 14 mm Hg @ 25°C
Relative vapour density at 20 °C: > 1
Relative density: 1.225
% Volatiles: 100 %
Solubility: Reacts with water.
Log Pow: No data available
Log Kow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidising properties: No data available
Explosive limits: No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable in sealed containers stored under a dry inert atmosphere.

10.3. Possibility of hazardous reactions
React with water and moisture in air, liberating trifluoromethanesulfonic acid.

10.4. Conditions to avoid
Heat. Open flame. Sparks.

10.5. Incompatible materials

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified
TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE  
Safety Data Sheet

Skin corrosion/irritation : Causes severe skin burns and eye damage.
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity

Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified
Symptoms/effects after inhalation : May cause irritation to the respiratory tract. Overexposure may cause: Cough. Headache. Nausea.
Symptoms/effects after skin contact : Causes (severe) skin burns.
Symptoms/effects after eye contact : Causes serious eye damage.
Symptoms/effects after ingestion : May be harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity
Acute aquatic toxicity : Not classified
Chronic aquatic toxicity : Not classified

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
No additional information available

12.6. Other adverse effects
Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Sewage disposal recommendations : Do not dispose of waste into sewer.
Product/Packaging disposal recommendations : May be incinerated. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number
In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number
UN-No. (ADR) : 2920
UN-No. (IMDG) : 2920
UN-No. (IATA) : 2920
UN-No. (ADN) : 2920
UN-No. (RID) : 2920

14.2. UN proper shipping name
Proper Shipping Name (ADR) : CORROSIVE LIQUID, FLAMMABLE, N.O.S.
Proper Shipping Name (IMDG) : CORROSIVE LIQUID, FLAMMABLE, N.O.S.
Proper Shipping Name (IATA) : Corrosive liquid, flammable, n.o.s.
Proper Shipping Name (ADN) : CORROSIVE LIQUID, FLAMMABLE, N.O.S.
Proper Shipping Name (RID) : CORROSIVE LIQUID, FLAMMABLE, N.O.S.
### Transport document description (ADR)
- UN 2920 CORROSIVE LIQUID, FLAMMABLE, N.O.S. (TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE), 8 (3), II, (D/E)

### Transport document description (IMDG)
- UN 2920 CORROSIVE LIQUID, FLAMMABLE, N.O.S. (TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE), 8 (3), II

### Transport document description (IATA)
- UN 2920 Corrosive liquid, flammable, n.o.s. (TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE), 8 (3), II

### Transport document description (ADN)
- UN 2920 CORROSIVE LIQUID, FLAMMABLE, N.O.S. (TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE), 8 (3), II

### Transport document description (RID)
- UN 2920 CORROSIVE LIQUID, FLAMMABLE, N.O.S. (TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE), 8 (3), II

#### 14.3. Transport hazard class(es)

<table>
<thead>
<tr>
<th>ADR</th>
<th>Transport hazard class(es) (ADR): 8 (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger labels (ADR): 8, 3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IMDG</th>
<th>Transport hazard class(es) (IMDG): 8 (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger labels (IMDG): 8, 3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IATA</th>
<th>Transport hazard class(es) (IATA): 8 (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard labels (IATA): 8, 3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ADN</th>
<th>Transport hazard class(es) (ADN): 8 (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger labels (ADN): 8, 3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RID</th>
<th>Transport hazard class(es) (RID): 8 (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger labels (RID): 8, 3</td>
<td></td>
</tr>
</tbody>
</table>
## 14.4. Packing group

<table>
<thead>
<tr>
<th>Packing group (ADR)</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing group (IMDG)</td>
<td>II</td>
</tr>
<tr>
<td>Packing group (IATA)</td>
<td>II</td>
</tr>
<tr>
<td>Packing group (ADN)</td>
<td>II</td>
</tr>
<tr>
<td>Packing group (RID)</td>
<td>II</td>
</tr>
</tbody>
</table>

## 14.5. Environmental hazards

- Dangerous for the environment: No
- Marine pollutant: No
- Other information: No supplementary information available

## 14.6. Special precautions for user

### - Overland transport

<table>
<thead>
<tr>
<th>Classification code (ADR)</th>
<th>CF1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special provisions (ADR)</td>
<td>274</td>
</tr>
<tr>
<td>Limited quantities (ADR)</td>
<td>1L</td>
</tr>
<tr>
<td>Excepted quantities (ADR)</td>
<td>E2</td>
</tr>
<tr>
<td>Packing instructions (ADR)</td>
<td>P001, IBC02</td>
</tr>
<tr>
<td>Mixed packing provisions (ADR)</td>
<td>MP15</td>
</tr>
<tr>
<td>Portable tank and bulk container instructions (ADR)</td>
<td>T11</td>
</tr>
<tr>
<td>Portable tank and bulk container special provisions (ADR)</td>
<td>TP2, TP27</td>
</tr>
<tr>
<td>Tank code (ADR)</td>
<td>L4BN</td>
</tr>
<tr>
<td>Vehicle for tank carriage</td>
<td>FL</td>
</tr>
<tr>
<td>Transport category (ADR)</td>
<td>2</td>
</tr>
<tr>
<td>Special provisions for carriage - Operation (ADR)</td>
<td>S2</td>
</tr>
<tr>
<td>Hazard identification number (Kemler No.)</td>
<td>83</td>
</tr>
<tr>
<td>Orange plates</td>
<td>: 83 2920</td>
</tr>
<tr>
<td>Tunnel restriction code (ADR)</td>
<td>D/E</td>
</tr>
</tbody>
</table>

### - Transport by sea

<table>
<thead>
<tr>
<th>Special provisions (IMDG)</th>
<th>274</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited quantities (IMDG)</td>
<td>1L</td>
</tr>
<tr>
<td>Excepted quantities (IMDG)</td>
<td>E2</td>
</tr>
<tr>
<td>Packing instructions (IMDG)</td>
<td>P001</td>
</tr>
<tr>
<td>IBC packing instructions (IMDG)</td>
<td>IBC02</td>
</tr>
<tr>
<td>Tank instructions (IMDG)</td>
<td>T11</td>
</tr>
<tr>
<td>Tank special provisions (IMDG)</td>
<td>TP2, TP27</td>
</tr>
<tr>
<td>EmS-No. (Fire)</td>
<td>F-E</td>
</tr>
<tr>
<td>EmS-No. (Spillage)</td>
<td>S-C</td>
</tr>
<tr>
<td>Stowage category (IMDG)</td>
<td>C</td>
</tr>
<tr>
<td>Stowage and handling (IMDG)</td>
<td>SW1, SW2</td>
</tr>
<tr>
<td>Properties and observations (IMDG)</td>
<td>Causes burns to skin, eyes and mucous membranes.</td>
</tr>
</tbody>
</table>

### - Air transport

| PCA Exected quantities (IATA) | E2 |
| PCA Limited quantities (IATA) | Y840 |
| PCA limited quantity max net quantity (IATA) | 0.5L |
| PCA packing instructions (IATA) | 851 |
| PCA max net quantity (IATA) | 1L |
| CAO packing instructions (IATA) | 855 |
| CAO max net quantity (IATA) | 30L |
| ERG code (IATA) | 8F |
TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE
Safety Data Sheet

- Inland waterway transport
  Classification code (ADN) : CF1
  Special provisions (ADN) : 274
  Limited quantities (ADN) : 1 L
  Excepted quantities (ADN) : E2
  Carriage permitted (ADN) : T
  Equipment required (ADN) : PP, EP, EX, A
  Ventilation (ADN) : VE01
  Number of blue cones/lights (ADN) : 1

- Rail transport
  Classification code (RID) : CF1
  Special provisions (RID) : 274
  Limited quantities (RID) : 1L
  Excepted quantities (RID) : E2
  Packing instructions (RID) : P001, IBC02
  Mixed packing provisions (RID) : MP15
  Portable tank and bulk container instructions (RID) : T11
  Portable tank and bulk container special provisions (RID) : TP2, TP27
  Tank codes for RID tanks (RID) : L4BN
  Transport category (RID) : 2
  Colis express (express parcels) (RID) : CE6
  Hazard identification number (RID) : 83

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions
TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE is not on the REACH Candidate List
TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE is not on the REACH Annex XIV List
TRIMETHYLSILYL TRIFLUOROMETHANESULFONATE is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

% Volatiles : 100 %

15.1.2. National regulations

Germany

Netherlands
SZW-list van kankerverwekkende stoffen : The substance is not listed
SZW-list van mutagene stoffen : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting gifte stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting gifte stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting gifte stoffen – Ontwikkeling : The substance is not listed

Denmark
Class for fire hazard : Class II-1
Store unit : 5 liter
Classification remarks: R10 «H226;H314»; Emergency management guidelines for the storage of flammable liquids must be followed.

Danish National Regulations: Young people below the age of 18 years are not allowed to use the product.

15.2. Chemical safety assessment:

No additional information available.

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor.

Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>H-Statement</th>
<th>Full text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Dam. 1</td>
<td>Serious eye damage/eye irritation, Category 1</td>
</tr>
<tr>
<td>Flam. Liq. 3</td>
<td>Flammable liquids, Category 3</td>
</tr>
<tr>
<td>Skin Corr. 1B</td>
<td>Skin corrosion/irritation, Category 1B</td>
</tr>
<tr>
<td>H226</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage.</td>
</tr>
</tbody>
</table>

SDS EU (REACH Annex II) - Custom

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

© 2019 Gelest Inc. Morrisville, PA 19067