SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description: Trimethylsilyl trifluoromethanesulfonate
Cat No.: 209440000; 209440100; 209440500
Synonyms: Trifluoromethanesulfonic acid trimethylsilyl ester; Trimethylsilyl triflate
CAS-No: 27607-77-8
EC-No: 248-565-4
Molecular Formula: C4H9F3O3S Si

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

Recommended Use: Laboratory chemicals.
Uses advised against: No Information available

1.3. Details of the supplier of the safety data sheet

Company
UK entity/business name: Fisher Scientific UK
Bishop Meadow Road, Loughborough,
Leicestershire LE11 5RG, United Kingdom
EU entity/business name: Acros Organics BVBA
Janssen Pharmaceuticaal 3a
2440 Geel, Belgium

E-mail address: begel.sdsdesk@thermofisher.com

1.4. 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

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards
Flammable liquids
Category 3 (H226)

Health hazards

ACR20944
2.2. Label elements

Signal Word
Danger

Hazard Statements
- H226 - Flammable liquid and vapor
- H314 - Causes severe skin burns and eye damage
- EUH014 - Reacts violently with water

Precautionary Statements
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- P310 - Immediately call a POISON CENTER or doctor/physician
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- P402 + P404 - Store in a dry place. Store in a closed container

2.3. Other hazards

No information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>EC-No.</th>
<th>Weight %</th>
<th>CLP Classification - Regulation (EC) No 1272/2008</th>
</tr>
</thead>
</table>
| Methanesulfonic acid, trifluoro-, trimethylsilyl ester | 27607-77-8 | EEC No. 248-565-4 | 99 | Flam. Liq. 3 (H226)  
                     |         |              |          | Skin Corr. 1B (H314)  
                     |         |              |          | Eye Dam. 1 (H318)  
                     |         |              |          | (EUH014)  |

Full text of Hazard Statements: see section 16
**SAFETY DATA SHEET**

Trimethylsilyl trifluoromethanesulfonate

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### SECTION 4: FIRST AID MEASURES

#### 4.1. Description of 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 soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.

**Ingestion**
Do NOT induce vomiting. Call a physician or poison control center immediately.

**Inhalation**
Remove to fresh air. 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. Immediate medical attention is required. If not breathing, give artificial respiration.

**Self-Protection of the First Aider**
Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

Difficulty in breathing. Causes burns by all exposure routes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: 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.

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

**Notes to Physician**
Treat symptomatically.

---

### SECTION 5: FIREFIGHTING MEASURES

#### 5.1. Extinguishing media

**Suitable Extinguishing Media**
CO₂, dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.

**Extinguishing media which must not be used for safety reasons**
Water.

#### 5.2. Special hazards arising from the substance or mixture

Flammable. Corrosive material. Reacts violently with water. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. Vapors may form explosive mixtures with air.

**Hazardous Combustion Products**
Carbon monoxide (CO), Carbon dioxide (CO₂), Silicon dioxide, Sulfur oxides, Gaseous hydrogen fluoride (HF).

#### 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
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6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Remove all sources of ignition. Do not expose spill to water. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Use spark-proof tools and explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. Do not breathe mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance. Do not allow contact with water because of violent reaction. Keep under nitrogen. Use only non-sparking tools.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Flammables area. Keep under nitrogen. Corrosives area.

Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany) Class 3

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

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

Biological limit values
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific
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regulatory bodies

Monitoring methods
BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
MDHS70 General methods for sampling airborne gases and vapours
MDHS 88 Volatile organic compounds in air. Laboratory method using diffusive samplers, solvent desorption and gas chromatography
MDHS 96 Volatile organic compounds in air - Laboratory method using pumped solid sorbent tubes, solvent desorption and gas chromatography

Derived No Effect Level (DNEL) No information available

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Measures
Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.
Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment
Eye Protection Goggles (European standard - EN 166)
Hand Protection Protective gloves

<table>
<thead>
<tr>
<th>Glove material</th>
<th>Breakthrough time</th>
<th>Glove thickness</th>
<th>EU standard</th>
<th>Glove comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural rubber</td>
<td>See manufacturers</td>
<td>-</td>
<td>EN 374</td>
<td></td>
</tr>
<tr>
<td>Butyl rubber</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitrile rubber</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neoprene</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PVC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.
(Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits
Small scale/Laboratory use

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plus filter, EN 141
When RPE is used a face piece Fit Test should be conducted

Environmental exposure controls

No information available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Light brown</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No data available</td>
</tr>
<tr>
<td>Softening Point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>140 °C / 284 °F</td>
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<tr>
<td>Explosibility (liquid)</td>
<td>Flammable</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>Lower 1.9</td>
</tr>
<tr>
<td>Flash Point</td>
<td>25 °C / 77 °F</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>405 °C / 761 °F</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
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</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Water Solubility</td>
<td>reacts</td>
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<tr>
<td>Solubility in other solvents</td>
<td>No information available</td>
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<tr>
<td>Partition Coefficient (n-octanol/water)</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>14 mmHg @ 25 °C</td>
</tr>
<tr>
<td>Density / Specific Gravity</td>
<td>1.225</td>
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<td>Bulk Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>7.7</td>
</tr>
<tr>
<td>Particle characteristics</td>
<td>Not applicable (liquid)</td>
</tr>
</tbody>
</table>

9.2. Other information

| Molecular Formula | C4 H9 F3 O3 S Si |
| Molecular Weight  | 222.26 |
| Explosive Properties | explosive air/vapour mixtures possible |

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

Yes

10.2. Chemical stability

Reacts violently with water, Moisture sensitive.

10.3. Possibility of hazardous reactions

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#### Hazardous Polymerization

Hazardous polymerization does not occur.

#### Hazardous Reactions

No information available.

**10.4. Conditions to avoid**

Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Exposure to moist air or water.

**10.5. Incompatible materials**

Strong oxidizing agents. Strong bases.

**10.6. Hazardous decomposition products**

- Carbon monoxide (CO)
- Carbon dioxide (CO₂)
- Silicon dioxide
- Sulfur oxides
- Gaseous hydrogen fluoride (HF)

---

**SECTION 11: TOXICOLOGICAL INFORMATION**

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Product Information**

No acute toxicity information is available for this product

**a) acute toxicity:**

- **Oral**
  - No data available
- **Dermal**
  - No data available
- **Inhalation**
  - No data available

**b) skin corrosion/irritation:**

Category 1B

**c) serious eye damage/irritation:**

Category 1

**d) respiratory or skin sensitization:**

- **Respiratory**
  - No data available
- **Skin**
  - No data available

**e) germ cell mutagenicity:**

No data available

**f) carcinogenicity:**

No data available

There are no known carcinogenic chemicals in this product

**g) reproductive toxicity:**

No data available

**h) STOT-single exposure:**

No data available

**i) STOT-repeated exposure:**

No data available

**Target Organs**

No information available.

**j) aspiration hazard:**

No data available

**Other Adverse Effects**

The toxicological properties have not been fully investigated.
### SECTION 11: TOXICOLOGICAL INFORMATION

11.2. Information on other hazards

Endocrine Disrupting Properties

Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

### SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

Do not empty into drains.

12.2. Persistence and degradability

Persistence

Soluble in water, Persistence is unlikely, based on information available.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely

12.4. Mobility in soil

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment

No data available for assessment.

12.6. Endocrine disrupting properties

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant

This product does not contain any known or suspected substance

Ozone Depletion Potential

This product does not contain any known or suspected substance

### SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products

Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep product and empty container away from heat and sources of ignition.

European Waste Catalogue (EWC)

According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

Other Information

Waste codes should be assigned by the user based on the application for which the product was used. Do not flush to sewer. Can be landfilled or incinerated, when in compliance with local regulations. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms.
SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

14.1. UN number             UN2920
14.2. UN proper shipping name Corrosive liquid, flammable, n.o.s
14.3. Transport hazard class(es)  8
    Subsidiary Hazard Class   3
14.4. Packing group        II

ADR

14.1. UN number             UN2920
14.2. UN proper shipping name Corrosive liquid, flammable, n.o.s
14.3. Transport hazard class(es)  8
    Subsidiary Hazard Class   3
14.4. Packing group        II

14.5. Environmental hazards No hazards identified
14.6. Special precautions for user No special precautions required
14.7. Maritime transport in bulk according to IMO instruments Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories
X = listed, Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), China (IECSC), Japan (ENCS), Australia (AICS), Korea (ECL).

<table>
<thead>
<tr>
<th>Component</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>IECSC</th>
<th>AICS</th>
<th>KECL</th>
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</thead>
<tbody>
<tr>
<td>Methanesulfonic acid, trifluoro-, trimethylsilyl ester</td>
<td>248-565-4</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
</tbody>
</table>

Not applicable

National Regulations

WGK Classification       Water endangering class = 3 (self classification)
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UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3
H226 - Flammable liquid and vapor
H314 - Causes severe skin burns and eye damage
H318 - Causes serious eye damage
EUH014 - Reacts violently with water

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IIECS - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic
ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor

Key literature references and sources for data
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chenadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.
Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.
First aid for chemical exposure, including the use of eye wash and safety showers.

Creation Date 09-Feb-2015
Revision Date 15-Dec-2020
Revision Summary Update to CLP Format.

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of issue.
End of Safety Data Sheet