



A Group Company of MITSUBISHI CHEMICAL

# TRIMETHYLFLUOROSILANE

Safety Data Sheet SIT8525.0

Issue date: 08/02/2022

Version: 1.0

## SECTION 1: Identification

### 1.1. Identification

Product name : TRIMETHYLFLUOROSILANE  
 Product code : SIT8525.0  
 Product form : Substance  
 Physical state : Gas  
 Formula : C<sub>3</sub>H<sub>9</sub>FSi  
 Synonyms : FLUOROTRIMETHYLSILANE  
 TRIMETHYLSILYLFLUORIDE  
 Chemical family : ORGANOFLUOROSILANE

### 1.2. Recommended use and restrictions on use

Recommended use : Chemical intermediate

### 1.3. Supplier

**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](mailto:info@gelest.com) - [www.gelest.com](http://www.gelest.com)

### 1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

## SECTION 2: Hazard(s) identification

### 2.1. Classification of the substance or mixture

#### GHS US classification

Gases under pressure Liquefied gas

Flammable liquids Category 1

Acute toxicity (oral) Category 4

Acute toxicity (dermal) Category 3

Acute toxicity (inhalation) Category 3

Skin corrosion/irritation Category 2

Serious eye damage/eye irritation Category 2

Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation

Full text of H statements : see section 16

H280 Contains gas under pressure; may explode if heated

H224 Extremely flammable liquid and vapor

H302 Harmful if swallowed

H311 Toxic in contact with skin

H331 Toxic if inhaled

H315 Causes skin irritation

H319 Causes serious eye irritation

H335 May cause respiratory irritation

### 2.2. GHS Label elements, including precautionary statements

#### GHS US labeling

Hazard pictograms (GHS US)



Signal word (GHS US)

: Danger

Hazard statements (GHS US)

: H224 - Extremely flammable liquid and vapor  
 H280 - Contains gas under pressure; may explode if heated  
 H302 - Harmful if swallowed  
 H311+H331 - Toxic in contact with skin or if inhaled  
 H315 - Causes skin irritation  
 H319 - Causes serious eye irritation  
 H335 - May cause respiratory irritation

Precautionary statements (GHS US)

: P210 - Keep away from heat, open flames, sparks. - No smoking.  
 P233 - Keep container tightly closed.  
 P240 - Ground/Bond container and receiving equipment.  
 P241 - Use explosion-proof electrical equipment.  
 P242 - Use only non-sparking tools.  
 P243 - Take precautionary measures against static discharge.  
 P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.  
 P264 - Wash hands thoroughly after handling.

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P270 - Do not eat, drink or smoke when using this product.  
P271 - Use only outdoors or in a well-ventilated area.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell.  
P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. rinse skin with water/shower  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P312 - Call a poison center or doctor if you feel unwell.  
P321 - Specific treatment (see first aid instructions on this label).  
P330 - Rinse mouth.  
P332+P313 - If skin irritation occurs: Get medical advice/attention.  
P337+P313 - If eye irritation persists: Get medical advice/attention.  
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.  
P370+P378 - In case of fire: Use foam, carbon dioxide, dry chemical to extinguish.  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.  
P403+P235 - Keep in a cool place  
P405 - Store locked up.  
P410+P403 - Protect from sunlight. Store in a well-ventilated place.  
P501 - Dispose of contents/container to licensed waste disposal facility..

### 2.3. Hazards not otherwise classified (HNOC)

Other hazards which do not result in classification : Hydrogen fluoride may be formed by reaction with water and moisture in air. The US OSHA PEL (TWA) for hydrogen fluoride is 3 ppm.

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Substance type : Mono-constituent  
Name : TRIMETHYLFLUOROSILANE  
CAS-No. : 420-56-4

Name	Product identifier	%	GHS US classification
Trimethylfluorosilane	(CAS-No.) 420-56-4	97 – 100	Press. Gas (Liq.), H280 Flam. Liq. 1, H224 Acute Tox. 4 (Oral), H302 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335

Full text of hazard classes and 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 victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact : Flush with water, then wash with saturated solution of sodium carbonate or 3% aqueous ammonia. 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 (acute and delayed)

Symptoms/effects after inhalation : Toxic if inhaled. May cause respiratory irritation.

Symptoms/effects after skin contact : Toxic in contact with skin. Causes skin irritation.

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

Symptoms/effects after ingestion : Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

Symptoms/effects upon intravenous administration : For ingestion, calcium gluconate intravenously and calcium lactate orally may be considered.

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Chronic symptoms : Hydrofluoric acid, the hydrolysis product has demonstrated mutagenicity and teratogenicity in laboratory bioassay.

### 4.3. Immediate medical attention and special treatment, if necessary

NOTE TO PHYSICIAN: This product reacts with water and human tissues to form hydrofluoric acid. Massage a paste of 20% magnesium oxide in glycerol onto the burned areas. Inject 2-5 cc of 10% calcium gluconate beneath and around the burned areas. Gastric lavage, if swallowed, using 5% calcium chloride followed by saline catharsis.

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide. Dry chemical.  
Unsuitable extinguishing media : Do not use straight streams.

### 5.2. Specific hazards arising from the chemical

Fire hazard : Extremely flammable gas. Contains gas under pressure; may explode if heated. Irritating fumes, hydrogen fluoride and organic acid vapors may develop when material is exposed to moist air.  
Explosion hazard : May form flammable/explosive vapor-air mixture.

### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Exercise caution when fighting any chemical fire.  
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 vapor and mist.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Eliminate every possible source of ignition. 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

Additional hazards when processed : Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapor and mist. Provide good ventilation in process area to prevent accumulation of vapors. Ground/bond container and receiving equipment. Take precautionary measures against static discharge. Use only outdoors or in a well-ventilated area.  
Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Use explosion-proof electrical equipment.  
Storage conditions : Keep container tightly closed. Keep in a cool place. Store locked up. Store in cylinders. Protect from sunlight. Store in a well-ventilated place.  
Incompatible materials : Moisture. Water.  
Storage temperature : Storage temperature not to exceed 52°C (125°F).  
Storage area : Store in a well-ventilated place. Store away from heat.

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### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

No additional information available

#### 8.2. Appropriate engineering controls

Appropriate engineering controls : Handle in an enclosing hood with exhaust ventilation.

#### 8.3. Individual protection measures/Personal protective equipment

##### 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	: Gas
Appearance	: Gas. Fumes in moist air.
Molecular mass	: 92.19 g/mol
Color	: Colorless.
Odor	: Pungent suffocating odor.
Odor threshold	: No data available
Refractive index	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: > 1
Melting point	: -74 °C
Freezing point	: No data available
Boiling point	: 16 – 18 °C
Flash point	: -35 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability	: Extremely flammable gas
Vapor pressure	: > 1 atm at 20°C
Relative vapor density at 20 °C	: > 1
Relative density	: 0.793
% Volatiles	: 100 %
Solubility	: Reacts with water.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Partition coefficient n-octanol/water (Log Kow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosion limits	: No data available

#### 9.2. Other information

No additional information available

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### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

No additional information available

#### 10.2. Chemical stability

Stable in sealed metal cylinders.

#### 10.3. Possibility of hazardous reactions

Reacts with water and moisture in air liberating hydrogen fluoride.

#### 10.4. Conditions to avoid

Heat. Open flame. Sparks.

#### 10.5. Incompatible materials

Moisture. Water.

#### 10.6. Hazardous decomposition products

Hydrogen fluoride. Organic acid vapors.

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity (oral) : Harmful if swallowed.  
Acute toxicity (dermal) : Toxic in contact with skin.  
Acute toxicity (inhalation) : Toxic if inhaled.

TRIMETHYLFLUOROSILANE (420-56-4)	
ATE US (oral)	500 mg/kg body weight
ATE US (dermal)	300 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h

Trimethylfluorosilane (420-56-4)	
ATE US (oral)	500 mg/kg body weight
ATE US (dermal)	300 mg/kg body weight
ATE US (gases)	700 ppmV/4h
ATE US (vapors)	3 mg/l/4h
ATE US (dust, mist)	0.5 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.  
Serious eye damage/irritation : Causes serious eye irritation.  
Respiratory or skin sensitization : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified  
None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.  
Reproductive toxicity : Not classified  
STOT-single exposure : May cause respiratory irritation.  
STOT-repeated exposure : Not classified  
Aspiration hazard : Not classified  
Potential Adverse human health effects and symptoms : On contact with water and human tissue this compound liberates hydrogen fluoride (hydrofluoric acid).  
Symptoms/effects after inhalation : Toxic if inhaled. May cause respiratory irritation.  
Symptoms/effects after skin contact : Toxic in contact with skin. Causes skin irritation.  
Symptoms/effects after eye contact : Causes serious eye irritation.  
Symptoms/effects after ingestion : Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.  
Symptoms/effects upon intravenous administration : For ingestion, calcium gluconate intravenously and calcium lactate orally may be considered.  
Chronic symptoms : Hydrofluoric acid, the hydrolysis product has demonstrated mutagenicity and teratogenicity in laboratory bioassay.  
Reason for classification : Expert judgment

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### SECTION 12: Ecological information

#### 12.1. Toxicity

No additional information available

#### 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. Other adverse effects

Other adverse effects	: This substance may be hazardous to the environment.
Effect on the ozone layer	: No additional information available
Effect on global warming	: No known effects from this product.
GWPmix comment	: No known effects from this product.

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

Sewage disposal recommendations	: Do not dispose of waste into sewer.
Product/Packaging disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility..
Additional information	: Handle empty containers with care because residual vapors are flammable.
Ecology - waste materials	: Avoid release to the environment.

### SECTION 14: Transport information

#### 14.1. UN number

UN-No.(DOT)	: 3160
DOT NA No	UN3160

#### 14.2. UN proper shipping name

Transport document description (DOT)	: UN3160 Liquefied gas, toxic, flammable, n.o.s. (Inhalation Hazard Zone D (TRIMETHYLFLUOROSILANE)), 2.3 (2.1)
Proper Shipping Name (DOT)	: Liquefied gas, toxic, flammable, n.o.s. Inhalation Hazard Zone D (TRIMETHYLFLUOROSILANE)
Class (DOT)	: 2.3 - Class 2.3 - Poisonous gas 49 CFR 173.115
Hazard labels (DOT)	: 2.3 - Poison gas 2.1 - Flammable gas



DOT Packaging Non Bulk (49 CFR 173.xxx)	: 304
DOT Packaging Bulk (49 CFR 173.xxx)	: 314, 315
DOT Symbols	: G - Identifies PSN requiring a technical name

#### 14.3. Additional information

Emergency Response Guide (ERG) Number	: 119
Other information	: No supplementary information available.

#### Transport by sea

DOT Vessel Stowage Location	: D - The material must be stowed "on deck only" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers or one passenger per each 3 m of overall vessel length, but the material is prohibited on passenger vessels in which the limiting number of passengers is exceeded.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters"



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### Air transport

DOT Quantity Limitations Passenger aircraft/rail : Forbidden  
(49 CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 : Forbidden  
CFR 175.75)

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
Trimethylfluorosilane	420-56-4	Present	Active	

### 15.2. International regulations

#### CANADA

Trimethylfluorosilane (420-56-4)
Listed on the Canadian NDSL (Non-Domestic Substances List)

#### EU-Regulations

Trimethylfluorosilane (420-56-4)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

#### National regulations

Trimethylfluorosilane (420-56-4)
Listed on the NCI (Vietnam - National Chemical Inventory)

### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

## SECTION 16: Other information

Full text of H-phrases::

H224	Extremely flammable liquid and vapor
H280	Contains gas under pressure; may explode if heated
H302	Harmful if swallowed
H311	Toxic in contact with skin
H315	Causes skin irritation
H319	Causes serious eye irritation
H331	Toxic if inhaled
H335	May cause respiratory irritation

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.

### Hazard Rating

Health	: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability	: 4 Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA)
Physical	: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

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## Safety Data Sheet

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Prepared by safety and environmental affairs.

Issue date: 08/02/2022

Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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