## Allyltrioethoxysilane

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

<table>
<thead>
<tr>
<th>Product Description:</th>
<th>Allyltrioethoxysilane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat No.:</td>
<td>L04297</td>
</tr>
<tr>
<td>Synonyms:</td>
<td>Triethoxyallylsilane.</td>
</tr>
<tr>
<td>CAS-No:</td>
<td>2550-04-1</td>
</tr>
<tr>
<td>Molecular Formula:</td>
<td>C9 H20 O3 Si</td>
</tr>
<tr>
<td>Supplier</td>
<td>Alfa Aesar</td>
</tr>
<tr>
<td></td>
<td>Avocado Research Chemicals, Ltd.</td>
</tr>
<tr>
<td></td>
<td>Shore Road</td>
</tr>
<tr>
<td></td>
<td>Port of Heysham Industrial Park</td>
</tr>
<tr>
<td></td>
<td>Heysham, Lancashire LA3 2XY</td>
</tr>
<tr>
<td></td>
<td>United Kingdom</td>
</tr>
<tr>
<td></td>
<td>Office Tel: +44 (0) 1524 850506</td>
</tr>
<tr>
<td></td>
<td>Office Fax: +44 (0) 1524 850608</td>
</tr>
</tbody>
</table>

**Emergency Telephone Number**

Call Carechem 24 at
+44 (0) 1865 407333 (English only);
+44 (0) 1235 239670 (Multi-language)

**E-mail address**

uktech@alfa.com
www.alfa.com
Product Safety Department

**Recommended Use**

Laboratory chemicals.

**Uses advised against**

No Information available

### SECTION 2. HAZARD IDENTIFICATION

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Appearance</th>
<th>Odor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>Colorless</td>
<td>No information available</td>
</tr>
</tbody>
</table>

**Emergency Overview**

Highly flammable liquid and vapor. Moisture sensitive.

**Classification of the substance or mixture**

| Flammable liquids. | Category 2 |

**Label Elements**

[Flammability symbol]
Signal Word

Danger

Hazard Statements
H225 - Highly flammable liquid and vapor

Precautionary Statements

Prevention
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P233 - Keep container tightly closed
P240 - Ground/bond container and receiving equipment
P241 - Use explosion-proof electrical/ ventilating/ lighting equipment
P242 - Use non-sparking tools
P243 - Take precautionary measures against static discharge

Response
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction

Storage
P403 + P235 - Store in a well-ventilated place. Keep cool

Disposal
P501 - Dispose of contents/container to an approved waste disposal plant

Physical and Chemical Hazards
Highly flammable. Vapors may cause flash fire or explosion.

Health Hazards
The product contains no substances which at their given concentration are considered to be hazardous to health.

Environmental hazards
Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. Will likely be mobile in the environment due to its volatility. The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silane, triethoxy-2-propenyl-</td>
<td>2550-04-1</td>
<td>97</td>
</tr>
</tbody>
</table>

### SECTION 4. FIRST AID MEASURES

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

Skin Contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.

Inhalation
Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial respiration. Get medical attention.

Ingestion
Clean mouth with water. Get medical attention.

Most important symptoms and effects
Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

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.
Notes to Physician
Treat symptomatically. Symptoms may be delayed.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Water spray. Carbon dioxide (CO\textsubscript{2}). Dry chemical. Chemical foam. Water mist may be used to cool closed containers.

Extinguishing media which must not be used for safety reasons
No information available.

Specific Hazards Arising from the Chemical
Vapors may travel to source of ignition and flash back. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air.

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.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions
Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions
See Section 12 for additional Ecological Information.

Methods for Containment and Clean Up
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

Handling
Avoid contact with skin and eyes. Do not breathe mist/vapors/spray. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. Keep away from open flames, hot surfaces and sources of ignition. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.

Storage
Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat, sparks and flame. Flammables area. Keep container tightly closed in a dry and well-ventilated place.

Specific Use(s)
Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

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

**Exposure Controls**

**Engineering Measures**
Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. 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**
Wear safety glasses with side shields (or 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>Nitrile rubber</td>
<td>See manufacturers</td>
<td>-</td>
<td>EN 374</td>
<td>(minimum requirement)</td>
</tr>
<tr>
<td>Viton (R)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

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

**Respiratory Protection**
No protective equipment is needed under normal use conditions.

**Large scale/emergency use**
Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Small scale/Laboratory use**
Maintain adequate ventilation

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

**Environmental exposure controls**
No information available.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Colorless</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</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>pH</td>
<td>No information 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>78 °C / 172.4 °F</td>
</tr>
<tr>
<td>Flash Point</td>
<td>21 °C / 69.8 °F</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>7.05 (Air = 1.0)</td>
</tr>
<tr>
<td>Specific Gravity / Density</td>
<td>0.900</td>
</tr>
</tbody>
</table>
### SECTION 10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stability</strong></td>
<td>Stable. Moisture sensitive.</td>
</tr>
<tr>
<td><strong>Hazardous Reactions</strong></td>
<td>No information available.</td>
</tr>
<tr>
<td><strong>Hazardous Polymerization</strong></td>
<td>Hazardous polymerization does not occur.</td>
</tr>
<tr>
<td><strong>Conditions to Avoid</strong></td>
<td>Keep away from open flames, hot surfaces and sources of ignition.</td>
</tr>
<tr>
<td></td>
<td>Excess heat. Incompatible products. Exposure to moisture.</td>
</tr>
<tr>
<td><strong>Materials to avoid</strong></td>
<td>Strong acids. Alcohols.</td>
</tr>
<tr>
<td><strong>Hazardous Decomposition Products</strong></td>
<td>Carbon monoxide (CO). Carbon dioxide (CO₂). Silicon dioxide.</td>
</tr>
</tbody>
</table>

| **Partition Coefficient (n-octanol/water)** | No information available. |
| **Autoignition Temperature**            | No data available         |
| **Decomposition Temperature**           | No data available         |
| **Viscosity**                           | No data available         |
| **Explosive Properties**                | No data available         |
| **Oxidizing Properties**                | No data available         |

Vapors may form explosive mixtures with air

### SECTION 11. TOXICOLOGICAL INFORMATION

**Product Information**

- No acute toxicity information is available for this product
- No data available for skin corrosion/irritation
- No data available for serious eye damage/irritation
- No data available for respiratory or skin sensitization
- No data available for germ cell mutagenicity
- No data available for carcinogenicity
- No data available for reproductive toxicity
- No data available for STOT-single exposure
- No data available for STOT-repeated exposure

**Molecular Formula**

C₉H₂₀O₃Si

**Molecular Weight**

204.34
Target Organs
No information available.

(j) aspiration hazard;
No data available

Symptoms / effects, both acute and delayed
Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity effects
Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

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

Bioaccumulative Potential
Bioaccumulation is unlikely

Mobility in soil
The product contains volatile organic compounds (VOC) which will evaporate easily from all surfaces. Will likely be mobile in the environment due to its volatility. Disperses rapidly in air

Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

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

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.

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.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport
UN-No
UN1993

Proper Shipping Name
Flammable liquid, n.o.s

Technical Shipping Name
Silane, triethoxy-2-propenyl-

Hazard Class
3

Packing Group
II

IMDG/IMO
UN-No
UN1993

Proper Shipping Name
Flammable liquid, n.o.s

Technical Shipping Name
Silane, triethoxy-2-propenyl-

Hazard Class
3

Packing Group
II
IATA

UN-No
Proper Shipping Name
Technical Shipping Name
Hazard Class
Packing Group

Special Precautions for User
No special precautions required

SECTION 15. REGULARATORY INFORMATION

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

<table>
<thead>
<tr>
<th>Component</th>
<th>The Inventory of Hazardous Chemicals (2015 Edition)</th>
<th>List of dangerous goods GB 12268 - 2012</th>
<th>Taiwan Toxic Chemicals Inventory</th>
<th>IECSC</th>
<th>EINECS</th>
<th>TSCA</th>
<th>DSL</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silane, triethoxy-2-propenyl-</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>219-843-2</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

National Regulations

SECTION 16. OTHER INFORMATION

Prepared By
Health, Safety and Environmental Department

Revision Date
05-Jan-2021

Revision Summary
SDS authoring systems update, replaces ChemGes SDS No. 2550-04-1.

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.
Fire prevention and fighting, identifying hazards and risks, static electricity, explosive atmospheres posed by vapours and dusts.
Chemical incident response training.

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
IECSC - Chinese Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
WEL - Workplace Exposure Limit
ACGIH - American Conference of Governmental Industrial Hygienists
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japanese Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals
TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
ALFAAL04297

SAFETY DATA SHEET

Allytriethoxysilane

DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic

Predicted No Effect Concentration (PNEC)
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

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

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
VOC (volatile organic compound)

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

Disclaimer
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End of Safety Data Sheet