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

1.1 Product identifier

**Trade name** Trimethylsilyl cyanide

**Stock number:** A19598, L14441

**CAS Number:** 7677-24-9

**EC number:** 231-657-3

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

**Identified use:** SU24  Scientific research and development

1.3 Details of the supplier of the safety data sheet

**Manufacturer/Supplier:** Alfa Aesar
Avocado Research Chemicals, Ltd.
Shore Road
Port of Heysham Industrial Park
Heysham Lancashire LA3 2XY
United Kingdom

**Office Tel:** +44 (0) 1524 850506
**Office Fax:** +44 (0) 1524 850608
**Email:** uktech@alfa.com
**www.alfa.com**

**Informing department:** Product safety department.

1.4 Emergency telephone number:

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

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**SECTION 2: Hazards identification**

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

- **GHS02 flame** Flam. Liq. 2 H225 Highly flammable liquid and vapour.
- **GHS06 skull and crossbones** Acute Tox. 2 H300 Fatal if swallowed.
- **GHS06 skull and crossbones** Acute Tox. 1 H310 Fatal in contact with skin.
- **GHS06 skull and crossbones** Acute Tox. 1 H330 Fatal if inhaled.
- **GHS09 environment** Aquatic Acute 1 H400 Very toxic to aquatic life.
- **GHS09 environment** Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

**Other hazards that do not result in classification** No information known.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 The substance is classified and labelled according to the CLP regulation.

**Signal word:** Danger

**Hazard statements:**
- H225 Highly flammable liquid and vapour.
- H300 Fatal if swallowed.
- H310 Fatal in contact with skin.
- H330 Fatal if inhaled.
- H410 Very toxic to aquatic life with long lasting effects.

**Precautionary statements:**
- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor/... Specific treatment is urgent (see on this label).
- P310+P330+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P361 Take off immediately all contaminated clothing.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Additional information:**
- EUH029 Contact with water liberates toxic gas.

2.3 Other hazards

Results of PBT and vPvB assessment

**PBT:** Not applicable.
**vPvB:** Not applicable.

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**SECTION 3: Composition/information on ingredients**

3.1 Substances

**CAS# Designation:** 7677-24-9 Trimethylsilyl cyanide

**Identification number(s):**
- **EC number:** 231-657-3

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**SECTION 4: First aid measures**

4.1 Description of first aid measures

**General information:**

- Instantly remove any clothing soiled by the product.
- Remove breathing apparatus only after soiled clothing has been completely removed.
- In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:** Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
- Seek immediate medical advice.
After skin contact
Instantly wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
After eye contact
Rinse opened eye for several minutes under running water. Then consult doctor.
After swallowing
Do not induce vomiting; instantly call for medical help.

4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents: CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.
For safety reasons unsuitable extinguishing agents: Water.

5.2 Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:
Carbon monoxide and carbon dioxide
Hydrogen cyanide (HCN)
Silicon oxide
Nitrogen oxides (NOx)

5.3 Advice for firefighters
Protective equipment:
Wear self-contained breathing apparatus.
Wear full protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Put on breathing apparatus.
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Keep away from ignition sources.

6.2 Environmental precautions:
Do not allow product to reach sewage system or water bodies.

6.3 Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents.

Prevention of secondary hazards: Keep away from ignition sources.

6.4 Reference to other sections
See Section 7 for information on safe handling.
See section 8 for information on personal protection equipment.
See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Handle under dry protective gas.
Keep containers tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation/exhaustion at the workplace.
Open airtight handle container with care.

Information about protection against explosions and fires:
Protect against electrostatic charges.
Fumes can combine with air to form an explosive mixture.
Keep ignition sources away. Do not smoke.

7.2 Conditions for safe storage, including any incompatibilities
Storage
Requirements to be met by storerooms and containers: Store in cool location.
Information about storage in one common storage facility:
Store away from water.
Store away from oxidising agents.
Further information about storage conditions:
Store under dry inert gas.
This product is moisture sensitive.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Protect from humidity and keep away from water.
Store in a locked cabinet or with access restricted to technical experts or their assistants.

7.3 Specific end use(s)
No further relevant information available.

SECTION 8: Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

8.1 Control parameters
Components with critical values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Substance</th>
<th>CAS Number</th>
<th>Time Period</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethylsilyl cyanide</td>
<td>7677-24-9</td>
<td>Long-term</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>

8.2 Exposure controls
Personal protective equipment

General protective and hygienic measures
The usual precautionary measures should be adhered to in handling the chemicals.

Breathing equipment: Use self-contained respiratory protective device in emergency situations.

Recommended filter device for short term use
Use a respirator with multi-purpose combination (US) or type ABEK (EN 14387) as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards such as NIOSH (USA) or CEN (EU).

Protection of hands:
Check protective gloves prior to each use for their proper condition.
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Material of gloves: Butyl rubber, BR.
TRADE NAME: Trimethylsilyl cyanide

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information
Appearance: Liquid
Form: Colourless
Smell: Almond-like
Odour threshold: Not determined.

pH-value: Not determined.
Change in condition
Melting point/Melting range: 11-12 °C
Boiling point/Boiling range: 118-119 °C
Sublimation temperature / start: Not determined

Flash point: 1 °C
Inflammability (solid, gaseous): Not determined.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Self-inflammability: Not determined.

Danger of explosion: Product is not explosive. However, formation of explosive air/steam mixtures is possible.
Critical values for explosion:
Lower: Not determined
Upper: Not determined
Steam pressure: Not determined
Density at 20 °C: 0.783 g/cm³
Relative density: Not determined.
Vapour density: Not determined.
Evaporation rate: Not determined.
Solubility in / Miscibility with Water: Not determined.
Partition coefficient (n-octanol/water): Not determined.
Viscosity:
dynamic: Not determined.
kinematic: Not determined.

9.2 Other information
No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity
No information known.

10.2 Chemical stability
Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions
Reacts with strong oxidising agents
Contact with water releases toxic gases
Contact with acids releases toxic gases

10.4 Conditions to avoid
No further relevant information available.

10.5 Incompatible materials:
Oxidising agents
Water/moisture

10.6 Hazardous decomposition products:
Carbon monoxide and carbon dioxide
Hydrogen cyanide (prussic acid)
Silicon oxide
Nitrogen oxides (NOx)

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity:
Fatal in contact with skin.
Fatal if swallowed.
Fatal if inhaled.
Danger by skin resorption.

LD/LC50 values that are relevant for classification: No data
Skin irritation or corrosion: May cause irritation
Eye irritation or corrosion: May cause irritation
Sensitization: No sensitizing effect known.
Germ cell mutagenicity: No effects known.
Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity: No effects known.
Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure: No effects known.
Aspiration hazard: No effects known.
Subacute to chronic toxicity: No effects known.
Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability
No further relevant information available.

12.3 Bioaccumulative potential
No further relevant information available.

12.4 Mobility in soil
No further relevant information available.

Ecotoxic effects:
Remark: Very toxic for fish

Additional ecological information:
General notes:
Water danger class 3 (Self-assessment): extremely hazardous for water.
Do not allow product to reach ground water, water bodies or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into soil.
Also poisonous for fish and plankton in water bodies.

(Contd. on page 4)
Trade name: Trimethylsilyl cyanide

May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.
Very toxic for aquatic organisms

12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.

12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Recommendation
Hand over to disposers of hazardous waste.
Must be specially treated under adherence to official regulations.
Consult state, local or national regulations for proper disposal.
Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

SECTION 14: Transport information

UN-Number
ADR, IMDG, IATA UN3383

14.2 UN proper shipping name
ADR 3383 TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. (Trimethylsilyl cyanide)
IMDG TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. (Trimethylsilyl cyanide)
IATA TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S.

14.3 Transport hazard class(es)
ADR

Class Label 6.1 (TF1) Toxic substances.
6.1+3

IMDG, IATA

Class Label 6.1 Toxic substances.
6.1+3

Packing group
ADR, IMDG I

14.5 Environmental hazards: Environmentally hazardous substance, liquid

14.6 Special precautions for user Warning: Toxic substances.
Kemler Number: 663
EMS Number: F,E,S-D

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:

ADR
Excepted quantities (EQ): E5
Limited quantities (LQ) 0
Transport category 1
Tunnel restriction code C/D

UN "Model Regulation": UN3383, TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. (Trimethylsilyl cyanide), 6.1 (3), I

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Australian Inventory of Chemical Substances Substance is listed.
Standard for the Uniform Scheduling of Drugs and Poisons Substance is not listed.
National regulations
Information about limitation of use:
Employment restrictions concerning young persons must be observed.
For use only by technically qualified individuals.
Water hazard class: Water danger class 3 (Self-assessment): extremely hazardous for water.
Other regulations, limitations and prohibitive regulations
ELINCS (European List of Notified Chemical Substances) Substance is not listed.
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed. Substance is not listed.
Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ADR: International Maritime Code for Dangerous Goods
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACEH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
ARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)