

SAFETY DATA SHEET

TETRAFLUOROSILANE

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Compilation date: 19/01/2010

Revision date: 17/01/12

Revision No: 2

Section 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name: TETRAFLUOROSILANE

CAS number: 7783-61-1

EINECS number: 232-015-5

Product code: PC6346

Synonyms: SILICON TETRAFLUORIDE

SILICON(IV) FLUORIDE

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

1.3. Details of the supplier of the safety data sheet

Company name: Apollo Scientific Ltd

Units 3 & 4

Parkway

Denton

Manchester

M34 3SG

UK

Tel: 0161 337 9971

Fax: 0161 336 6932

Email: david.tideswell@apolloscientific.co.uk

1.4. Emergency telephone number

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CHIP: -: R14; T+: R26/27/28; -: R31; C: R34; T: R39

Classification under CLP: Acute Tox. 2: H300+310+330; Skin Corr. 1B: H314; Press. Gas: H250; -: EUH031; -: H280

Most important adverse effects: Reacts violently with water. Very toxic by inhalation, in contact with skin and if swallowed.
Contact with acids liberates toxic gas. Causes burns. Danger of very serious irreversible effects.

2.2. Label elements

Label elements under CLP:

Hazard statements: EUH031: Contact with acids liberates toxic gas.

H300+310+330: Fatal if swallowed, in contact with skin or if inhaled.

[cont...]

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H314: Causes severe skin burns and eye damage.

H280: Contains gas under pressure; may explode if heated.

Signal words: Danger

Hazard pictograms: GHS05: Corrosion

GHS06: Skull and crossbones

GHS04: Gas cylinder



Precautionary statements: P280: Wear.

P309+311: IF exposed or if you feel unwell: Call a POISON CENTER or doctor.

Label elements under CHIP:

Hazard symbols: Very toxic.



Risk phrases: R14: Reacts violently with water.

R26/27/28: Very toxic by inhalation, in contact with skin and if swallowed.

R31: Contact with acids liberates toxic gas.

R34: Causes burns.

R39: Danger of very serious irreversible effects.

Safety phrases: S7/9: Keep container tightly closed and in a well-ventilated place.

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39: Wear suitable protective clothing, gloves and eye / face protection.

S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3. Other hazards

Other hazards: Lachrymatory.

PBT: This substance is not identified as a PBT substance.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: TETRAFLUOROSILANE

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Remove all contaminated clothes and footwear immediately unless stuck to skin.

Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Transfer to hospital if there are burns or symptoms of poisoning.

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Eye contact: Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.

Ingestion: Wash out mouth with water. Do not induce vomiting. If conscious, give half a litre of water to drink immediately. If unconscious, check for breathing and apply artificial respiration if necessary. If unconscious and breathing is OK, place in the recovery position. Transfer to hospital as soon as possible.

Inhalation: Remove casualty from exposure ensuring one's own safety whilst doing so. If conscious, ensure the casualty sits or lies down. If unconscious and breathing is OK, place in the recovery position. If unconscious, check for breathing and apply artificial respiration if necessary. If breathing becomes bubbly, have the casualty sit and provide oxygen if available. Transfer to hospital as soon as possible.

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

Skin contact: There may be redness or whiteness of the skin in the area of exposure. Irritation or pain may occur at the site of contact. Absorption through the skin may be fatal.

Eye contact: Corneal burns may occur. May cause permanent damage. The eyes may water profusely.

Ingestion: There may be soreness and redness of the mouth and throat. There may be vomiting. Convulsions may occur. There may be loss of consciousness. Corrosive burns may appear around the lips.

Inhalation: There may be shortness of breath with a burning sensation in the throat. Absorption through the lungs can occur causing symptoms similar to those of ingestion. Convulsions may occur. There may be loss of consciousness.

Delayed / immediate effects: Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Symptoms include burning sensation, cough, wheezing, laryngitis, shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema.

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

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Carbon dioxide, dry chemical powder, foam. Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: Toxic. In combustion emits toxic fumes. Hydrogen fluoride (HF). Silicon oxides.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

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Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Notify the police and fire brigade immediately. If outside do not approach from downwind. If outside keep bystanders upwind and away from danger point. Mark out the contaminated area with signs and prevent access to unauthorised personnel. Do not attempt to take action without suitable protective clothing - see section 8 of SDS. Turn leaking containers leak-side up to prevent the escape of liquid.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Clean-up should be dealt with only by qualified personnel familiar with the specific substance. Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

6.4. Reference to other sections

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid direct contact with the substance. Ensure there is exhaust ventilation of the area. Avoid the formation or spread of mists in the air. Only use in fume hood.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in cool, well ventilated area. Keep container tightly closed. Moisture sensitive.

Suitable packaging: Must only be kept in original packaging.

7.3. Specific end use(s)

Specific end use(s): No data available.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits:

Respirable dust

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
UK	2.5mg/m3	-	-	-

8.2. Exposure controls

Engineering measures: Ensure there is exhaust ventilation of the area.

Respiratory protection: Self-contained breathing apparatus must be available in case of emergency.

Hand protection: Impermeable gloves.

Eye protection: Safety glasses with side-shields. Ensure eye bath is to hand.

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Skin protection: Impermeable protective clothing.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquified gas

Colour: Colourless

Odour: Suffocating odour

Solubility in water: Rapidly hydrolyzes

Boiling point/range °C: -86

Melting point/range °C: -90

Vapour pressure: 9.66MPa (21.1°C)

Relative density: 3.57g/cm³

9.2. Other information

Other information: Not applicable.

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: Hazardous reactions will not occur under normal transport or storage conditions.

10.4. Conditions to avoid

Conditions to avoid: Heat. Hot surfaces. Flames. Moist air.

10.5. Incompatible materials

Materials to avoid: Alkali metals. Water. Calcium oxide Oxidising agents. Acids. Bases.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes of sulphur oxides. Hydrogen fluoride (HF).

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values:

Route	Species	Test	Value	Units
GASES	RAT	4H LC50	2272	ppmV

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Relevant hazards for substance:

Hazard	Route	Basis
Acute toxicity (ac. tox. 2)	INH DRM ING	Based on test data
Acute toxicity (ac. tox. 1)	OPT INH DRM	Based on test data
Skin corrosion/irritation	DRM	Based on test data
Serious eye damage/irritation	OPT	Based on test data

Symptoms / routes of exposure

Skin contact: There may be redness or whiteness of the skin in the area of exposure. Irritation or pain may occur at the site of contact. Absorption through the skin may be fatal.

Eye contact: Corneal burns may occur. May cause permanent damage. The eyes may water profusely.

Ingestion: There may be soreness and redness of the mouth and throat. There may be vomiting. Convulsions may occur. There may be loss of consciousness. Corrosive burns may appear around the lips.

Inhalation: There may be shortness of breath with a burning sensation in the throat. Absorption through the lungs can occur causing symptoms similar to those of ingestion. Convulsions may occur. There may be loss of consciousness.

Delayed / immediate effects: Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Symptoms include burning sensation, cough, wheezing, laryngitis, shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values: Not applicable.

12.2. Persistence and degradability

Persistence and degradability: No data available.

12.3. Bioaccumulative potential

Bioaccumulative potential: No data available.

12.4. Mobility in soil

Mobility: No data available.

12.5. Results of PBT and vPvB assessment

PBT identification: This substance is not identified as a PBT substance.

12.6. Other adverse effects

Other adverse effects: No data available.

[cont...]

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Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: MATERIAL SHOULD BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS

Disposal of packaging: Dispose of as special waste in compliance with local and national regulations Observe all federal, state and local environmental regulations.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN1859

14.2. UN proper shipping name

Shipping name: SILICON TETRAFLUORIDE

14.3. Transport hazard class(es)

Transport class: 2 (8)

14.4. Packing group

14.5. Environmental hazards

Environmentally hazardous: No

Marine pollutant: No

14.6. Special precautions for user

Tunnel code: C/D

Transport category: 1

Section 15: Regulatory information

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

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* Data predicted using computational software. Toxtree - Toxic Hazard Estimation by decision tree approach. <http://ecb.jrc.ec.europa.eu/qsar/qsar-tools/index.php?c=TOXTREE>

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~ Data predicted using computational software ACD/ToxSuite v 2.95.1 Copyright 1994-2009 ACD/labs, Copyright 2001-2009 Pharma Algorithms, Inc, Advanced Chemistry Development, Inc (ACD/Labs). http://www.acdlabs.com/products/pc_admet/tox/tox/

Phrases used in s.2 and 3: EUH031: Contact with acids liberates toxic gas.

H280: Contains gas under pressure; may explode if heated.

H300+310+330: Fatal if swallowed, in contact with skin or if inhaled.

H314: Causes severe skin burns and eye damage.

R14: Reacts violently with water.

R26/27/28: Very toxic by inhalation, in contact with skin and if swallowed.

R31: Contact with acids liberates toxic gas.

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Legal disclaimer: The material is intended for research purposes only and should be handled exclusively by those who have been fully trained in safety, laboratory and chemical handling procedures. The above information is believed to be correct to the best of our knowledge. The above information is believed to be correct to the best of our knowledge at the date of its publication, but should not be considered to be all inclusive. It should be used only as a guide for safe handling, storage, transportation and disposal. We cannot guarantee that the hazards detailed in this document are the only hazards that exist for this product. This is not a warranty and Apollo Scientific Ltd shall not be held liable for any damage resulting from handling or from contact with the above product.