

SAFETY DATA SHEET

Version: v1

Revision Date: 2024-01-10

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

1.1 Product identifiers

Product name : Tetraethyl orthosilicate
Product Number : T434182
Brand : aladdin
CAS-No. : 78-10-4

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

Identified uses : Laboratory chemicals, Manufacture of substances.

1.3 Company

Company : ALADDIN SCIENTIFIC CORPORATION
Address : 14078 Meridian Parkway,
Riverside, CA. 92518
Telephone : +1 (833) 552-7181
Fax : no data available

1.4 Emergency telephone number

CHEMTREC®, Inside the USA : 1-800-424-9300
CHEMTREC®, Outside the USA :

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226

Acute toxicity, Inhalation (Category 4), H332

Eye irritation (Category 2), H319

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

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H226	Flammable liquid and vapor
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
Precautionary statement(s)	
P210	Keep away from heat, hot surface, sparks, open flames and other ignition sources. - No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof [electrical/ventilating/lighting/...] 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 [and ...] thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353	IF ON SKIN (or hair): Take off Immediately all contaminated clothing. Rinse SKIN with water [or shower].
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
P337+P313	IF eye irritation persists: Get medical advice/attention.
P370+P378	In case of fire: Use ... to extinguish.
P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P403+P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/container to an approved waste disposal plant.
P304+P340+P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor. if you feel unwell.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	: Orthosilicic acid tetraethyl ester, Tetraethyl orthosilicate, Silicon tetraethoxide, Tetraethyl silicate, TEOS, Tetraethoxysilane, Tetraethoxysilicon(IV)
Formula	: C ₈ H ₂₀ O ₄ Si
Molecular weight	: 208.33
CAS No.	: 78-10-4
EC-NO.	: 201-083-8

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Component Component	Classification Classification	Concentration Concentration
Tetraethyl orthosilicate		
	no data available	Encapsulation for Deposition Systems

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a

4.2 Most important symptoms and effects, both acute and delayed

no data available

4.3 Indication of any immediate medical attention and special treatment needed

no data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2) Foam Dry powder

Unsuitable extinguishing media

no data available

5.2 Special hazards arising from the substance or mixture

Carbon oxides, silicon oxides Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air at elevated temperatures. Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

If necessary, wear a self-contained breathing apparatus to put out the fire.

5.4 Further information

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no data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

7.2 Conditions for safe storage, including any incompatibilities

Store under nitrogen. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Moisture sensitive.

7.3 Specific end use(s)

no data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate

government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves.Gloves must be inspected prior to use.Use proper glove removal technique (without touching
glove's outer surface) to avoid skin contact with this product.Dispose of contaminated gloves after use in
accordance with applicable laws and good laboratory practices.Wash and dry hands.

Immersion protection
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: > 480 min
Material tested:Camatril? (Aldrich Z677442, Size M)
Splash protection

Aldrich - 333859 Page 4 of 7
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: > 30 min
Material tested:Dermatril? P (Aldrich Z677388, Size M)
data

source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method:

EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the
supplier of the CE approved gloves.This recommendation is advisory only and must be evaluated by an Industrial
Hygienist familiar with the specific situation of anticipated use by our customers.It should not be construed as
offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective
equipment must be selected according to the concentration and amount of the dangerous substance at the specific
workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose
combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.If the
respirator is the sole means of protection, use a full-face supplied air respirator.Use respirators and components
tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

no data available

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	no data available
b) Odour	no data available
c) Odour Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	-82 °C
f) Initial boiling point and boiling range	168 °C
g) Flash point	45 °C
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapour pressure	no data available

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l) Vapour density	no data available
m) Relative density	0.933g/mL at 20°C (lit.)
n) Water solubility	no data available
o) Partition coefficient: n-octanol/water	no data available
p) Auto-ignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties N	no data available
t) Oxidizing properties N	no data available

9.2 Other safety information

no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) . May decompose on exposure to moist air or water.

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

rubber, various plastics

10.6 Hazardous decomposition products

Other decomposition products - No data available Hazardous decomposition products formed under fire conditions.
- Carbon oxides, silicon oxides In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - > 2,500 mg/kg (OECD Test Guideline 423) Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

LD50 Oral - Rat - 6,270 mg/kg Remarks: (RTECS)

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LC50 Inhalation - Rat - male - 4 h - 10 mg/l - vapor (OECD Test Guideline 403) Remarks: (Regulation (EC) No 1272/2008, Annex VI) Symptoms: mucosal irritations, Cough, Shortness of breath, Inhalation may lead to the formation of oedemas in the respiratory tract., Possible damages:, damage of respiratory tract

LD50 Dermal - Rabbit - 5,878 mg/kg Remarks: (RTECS)

Skin corrosion/irritation

Skin - Rabbit Result: No skin irritation - 4 h (OECD Test Guideline 404)

Serious eye damage/eye irritation

Causes serious eye irritation. (Regulation (EC) No 1272/2008, Annex VI)

Respiratory or skin sensitisation

Buehler Test - Guinea pig Result: negative (OECD Test Guideline 406)

Germ cell mutagenicity

Test Type: Ames test Test system: Salmonella typhimurium Metabolic activation: with and without metabolic activation Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay) Result: negative

Carcinogenicity

no data available

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure

May cause respiratory irritation. Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Additional Information

Repeated dose toxicity - Rat - male and female - Gavage - NOAEL (No observed adverse

effect level) - 10 - 50 mg/kg

RTECS: VV9450000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

After uptake of large quantities:

Tiredness, narcosis

Damage to:

Kidney

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish semi-static test LC50 - Danio rerio (zebra fish) - > 245 mg/l - 96 h (Regulation (EC) No. 440/2008, Annex, C.1)

Toxicity to daphnia and other aquatic invertebrates flow-through test EC50 - Daphnia magna (Water flea) - > 75 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata - > 100 mg/l - 72 h (OECD Test Guideline 201)

Toxicity to bacteria static test EC50 - activated sludge - > 100 mg/l - 3 h (OECD Test Guideline 209)

12.2 Persistence and degradability

Toxicity to fish semi-static test LC50 - Danio rerio (zebra fish) - > 245 mg/l - 96 h (Regulation (EC) No. 440/2008, Annex, C.1) Toxicity to daphnia and other aquatic invertebrates flow-through test EC50 - Daphnia magna (Water flea) - > 75 mg/l - 48 h (OECD Test Guideline 202) Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata - > 100 mg/l - 72 h (OECD Test Guideline 201)

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

Toxicity to fish semi-static test LC50 - Danio rerio (zebra fish) - > 245 mg/l - 96 h (Regulation (EC) No. 440/2008, Annex, C.1) Toxicity to daphnia and other aquatic invertebrates flow-through test EC50 - Daphnia magna (Water flea) - > 75 mg/l - 48 h (OECD Test Guideline 202) Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata - > 100 mg/l - 72 h (OECD Test Guideline 201)

12.6 Other adverse effects

no data available

SECTION 13:

13.1 Disposal considerations

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Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Toxicity to fish semi-static test LC50 - Danio rerio (zebra fish) - > 245 mg/l - 96 h (Regulation (EC) No. 440/2008, Annex, C.1) Toxicity to daphnia and other aquatic invertebrates flow-through test EC50 - Daphnia magna (Water flea) - > 75 mg/l - 48 h (OECD Test Guideline 202) Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata - > 100 mg/l - 72 h (OECD Test Guideline 201)

SECTION 14: Transport information
DOT (US)

UN number: 1292	Packing group: III	Class: 3
Proper shipping name: TETRAETHYL SILICATE	Reportable Quantity(RQ): no data available	Poison Inhalation Hazard: no data available
Environmental Hazards: no		

IMDG

UN number: 1292	Packing group: III	EMS-No: no data available
Proper shipping name: TETRAETHYL SILICATE		

IATA

UN number: 1292	Packing group: III	Class: 3
Proper shipping name: TETRAETHYL SILICATE		

SECTION 15: Regulatory information

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

SECTION 16: Other information
Prepared By

Regulatory Affairs
ALADDIN SCIENTIFIC CORPORATION
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Revision Summary

SDS sections updated v1

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