

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Product name : Tetraethyl Orthosilicate
CAS No. : 78-10-4

Manufacturer or supplier's details

Company : Heynova (Shanghai) New Material Technology CO., Ltd
Address : Building 3, No. 690 Bibo Road, Pudong New Area, Shanghai, China
Telephone : +86-178-2110-2608
E-mail address : info@heynovachem.com

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance : liquid
Color : colorless

Flammable liquid and vapor. Causes skin irritation. Causes serious eye irritation. Harmful if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness. Causes damage to organs (Blood). Causes damage to organs (Respiratory system) through prolonged or repeated exposure. May cause damage to organs (Kidney) through prolonged or repeated exposure.

GHS Classification

Flammable liquids : Category 3
Acute toxicity (Inhalation) : Category 4
Skin corrosion/irritation : Category 2
Serious eye damage/eye irritation : Category 2A
Specific target organ toxicity - single exposure : Category 1 (Blood)
Specific target organ toxicity - single exposure : Category 3 (respiratory tract irritation, Narcotic effects)
Specific target organ toxicity - repeated exposure : Category 1 (Respiratory system)
Specific target organ toxicity - repeated exposure : Category 2 (Kidney)

GHS label elements

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H226 Flammable liquid and vapor.
H315 Causes skin irritation.

H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H335 May cause respiratory irritation.
 H336 May cause drowsiness or dizziness.
 H370 Causes damage to organs (Blood).
 H372 Causes damage to organs (Respiratory system) through prolonged or repeated exposure.
 H373 May cause damage to organs (Kidney) through prolonged or repeated exposure.

Precautionary Statements
: Prevention:

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 only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
 P264 Wash skin thoroughly after handling.
 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/ eye protection/ face protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
 P332 + P313 If skin irritation occurs: Get medical advice/ attention.
 P337 + P313 If eye irritation persists: Get medical advice/ attention.
 P362 + P364 Take off contaminated clothing and wash it before reuse.
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P403 + P235 Store in a well-ventilated place. Keep cool.
 P405 Store locked up.

Disposal:

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

Physical and chemical hazards

Flammable liquid and vapor.

Health hazards

Harmful if inhaled. Causes skin irritation. Causes serious eye irritation. Causes damage to organs. May cause respiratory irritation. May cause drowsiness or dizziness. Causes damage to organs through prolonged or repeated exposure. May cause damage to organs through prolonged or repeated exposure.

Environmental hazards

Not classified based on available information.

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture

: Substance

Components

Chemical name	CAS RN	Concentration (% w/w)
Tetraethyl Orthosilicate	78-10-4	98

4. FIRST AID MEASURES

If inhaled	:	Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician.
In case of skin contact	:	Take off all contaminated clothing immediately. If on skin, rinse well with water. Call a POISON CENTER or doctor/ physician.
In case of eye contact	:	Rinse with plenty of water. If easy to do, remove contact lens, if worn. Call a POISON CENTER or doctor/ physician.
If swallowed	:	Call a POISON CENTER or doctor/ physician. Rinse mouth.
Most important symptoms and effects, both acute and delayed	:	None known.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Dry powder, Foam, Water spray, Carbon dioxide (CO2)
Specific hazards during fire fighting	:	No information available.
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Immediately evacuate personnel to safe areas. Remove undamaged containers from fire area if it is safe to do so.
Special protective equipment for fire-fighters	:	Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Wear suitable protective equipment. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.
Environmental precautions	:	Prevent product from entering drains.
Methods and materials for containment and cleaning up	:	Collect as much of the spill as possible with a suitable absorbent material.

7. HANDLING AND STORAGE
Handling

Technical measures	:	Prevent generation of vapor or mist. Take precautionary measures against static discharge. Use explosion-proof equipment.
Local/Total ventilation	:	Ensure adequate ventilation.

Handle product only in closed system or provide appropriate exhaust ventilation at machinery.
 Use a local exhaust ventilation.

Advice on safe handling : Avoid contact with skin, eyes and clothing.
 Wear personal protective equipment.
 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 Do not subject to grinding, shock or friction.
 Wash hands and face thoroughly after handling.

Avoidance of contact : Oxidizing agents, water, Acids

Storage

Conditions for safe storage : Keep container tightly closed.
 Store in a cool and shaded area.
 Keep in a well-ventilated place.
 Use explosion-proof equipment.
 Protect from moisture.
 Keep under inert gas.
 Store locked up.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS RN	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Tetraethyl Orthosilicate	78-10-4	TWA	10 ppm	ACGIH

Engineering measures : Install a closed system or local exhaust.
 Also install safety shower and eye bath.

Personal protective equipment

Respiratory protection : Gas mask
 Self-contained breathing apparatus

Eye/face protection : Safety glasses
 Safety goggles
 Face-shield

Skin and body protection : Impervious protective clothing

Hand protection : Impervious gloves

*Use personal protective equipment(PPE) approved under appropriate government standards and follow local and national regulations.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : colorless

Odor : No data available

Odor Threshold : 17 ppm

pH : No data available

Melting point/freezing point : -82 °C

Boiling point/boiling range : 165 °C

Flash point	: 54 °C
Evaporation rate	: No data available
Flammability	: No data available
Upper explosion limit / Upper flammability limit	: 23 %(V)
Lower explosion limit / Lower flammability limit	: 1.3 %(V)
Vapor pressure	: 200 Pa (20 °C)
Relative vapor density	: 7.22
Relative density	: 0.93
Solubility(ies)	
Water solubility	: very slightly soluble
Solubility in other solvents	: completely miscible Solvent: Alcohol
	soluble Solvent: Ether
	slightly soluble Solvent: Benzene
Partition coefficient: n-octanol/water (log value)	: 0.04
Autoignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Molecular weight	: 208.33 g/mol

10. STABILITY AND REACTIVITY

Reactivity	: No data available
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: None under normal processing.
Conditions to avoid	: Electrical spark Open flame Electrostatic discharge Exposure to moisture.
Incompatible materials	: Oxidizing agents, water, Acids
Hazardous decomposition products	: Carbon monoxide, Carbon dioxide (CO ₂), Silicon oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute inhalation toxicity : Assessment: The component/mixture is moderately toxic after short term inhalation.

Components:

Tetraethyl Orthosilicate:

Acute oral toxicity : LD50 (Rat): 6,270 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LCLo (Rat): 1000 ppm
Exposure time: 4 h
Test atmosphere: gas
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rabbit): 5,859 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Acute toxicity (other routes of administration) : LDLo (Rabbit): 400 mg/kg
Application Route: Intravenous

Skin corrosion/irritation

Product:

Result : Skin irritation

Components:

Tetraethyl Orthosilicate:

Result : Skin irritation

Serious eye damage/eye irritation

Product:

Result : Eye irritation

Components:

Tetraethyl Orthosilicate:

Result : Eye irritation

Respiratory or skin sensitization : No information available.

Germ cell mutagenicity : No information available.

Carcinogenicity : No information available.

Reproductive toxicity : No information available.

STOT-single exposure

Product:

Assessment : May cause respiratory irritation.
May cause drowsiness or dizziness.

Target Organs : Blood
Assessment : Causes damage to organs.

Components:**Tetraethyl Orthosilicate:**

Assessment : May cause respiratory irritation.
May cause drowsiness or dizziness.

Target Organs : Blood
Assessment : Causes damage to organs.

STOT-repeated exposure**Product:**

Target Organs : Respiratory system
Assessment : Causes damage to organs through prolonged or repeated exposure.

Target Organs : Kidney
Assessment : May cause damage to organs through prolonged or repeated exposure.

Components:**Tetraethyl Orthosilicate:**

Target Organs : Respiratory system
Assessment : Causes damage to organs through prolonged or repeated exposure.

Target Organs : Kidney
Assessment : May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity : No information available.

Aspiration toxicity : No information available.

RTECS No. : VV9450000 (Tetraethyl Orthosilicate)

12. ECOLOGICAL INFORMATION**Ecotoxicity**

No data available

Persistence and degradability

No data available

Bioaccumulative potential**Components:****Tetraethyl Orthosilicate:**

Partition coefficient: n-octanol/water (log value) : 0.04

Mobility in soil

No data available

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

- Waste from residues : Disposal in accordance with local and national regulations.
Take precautions against ignition or explode.
Entrust disposal to a licensed waste disposal company.
- Contaminated packaging : Disposal in accordance with local and national regulations.
Before disposal of used container, remove contents completely.

14. TRANSPORT INFORMATION

International Regulations**IATA-DGR**

- UN/ID No. : UN 1292
- Proper shipping name : Tetraethyl silicate
- Class : 3
- Packing group : III

IMDG-Code

- UN number : UN 1292
- Proper shipping name : TETRAETHYL SILICATE
- Class : 3
- Packing group : III
- EmS Code : F-E, S-D

Domestic regulation**GB 6944/12268**

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

15. REGULATORY INFORMATION

Regulations on Safety Management of Hazardous Chemicals

- Catalogue of Hazardous Chemicals : Listed

The ingredients of this product are reported in the following inventories:

- CH BAGREG : On the inventory, or in compliance with the inventory
- TSCA : All substances listed as active on the TSCA inventory
- AICS : On the inventory, or in compliance with the inventory
- DSL : All components of this product are on the Canadian DSL
- ENCS : On the inventory, or in compliance with the inventory
- ISHL : On the inventory, or in compliance with the inventory
- KECI : On the inventory, or in compliance with the inventory
- PICCS : On the inventory, or in compliance with the inventory
- IECSC : On the inventory, or in compliance with the inventory

NZIoC : On the inventory, or in compliance with the inventory

16. OTHER INFORMATION

Revision Date : 2025/02/22
Date format : yyyy/mm/dd

Disclaimer

This SDS was prepared sincerely based on the information obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority. The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling operations, sufficient care should be taken, in addition to the safety measures suitable for the given situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.