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**Material Safety Data Sheet**

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<b>Product Name</b>	<b><u>Tetraethyl orthosilicate</u></b>
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**Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE  
COMPANY/UNDERTAKING**

**1.1. Product identification:****Product Description:** Tetraethyl orthosilicate**Synonyms:** Ethyl silicate, TEOS, Tetraethoxysilane**CAS-No:** 78-10-4**EC-No.:** 201-083-8**Molecular Formula:** C<sub>8</sub> H<sub>20</sub> O<sub>4</sub> Si

**REACH Registration No:** A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration, or the registration is envisaged for a later registration deadline.

**1.2. Relevant identified uses of the substance or mixture and uses advised against:****Recommended Use:** Laboratory chemicals**1.3. Details of the supplier of the safety data sheet:**

- **Company** **Finar Limited**  
184-186/P, Chacharwadi Vasna,  
Sarkhej-Bavla Highway,  
Ta.: Sanand, Dist.: Ahmedabad,  
Email: [info@finarchemicals.com](mailto:info@finarchemicals.com)  
Web: [www.finarchemicals.com](http://www.finarchemicals.com)
- **E-Mail Address** [safety@finarchemicals.com](mailto:safety@finarchemicals.com); [info@finarchemicals.com](mailto:info@finarchemicals.com)

**1.4. Emergency Telephone Number:**

- For Emergency contact on: +91 - 2717 - 616 717
- Registered office No: +91 - 79 - 40040085

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**Material Safety Data Sheet**

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<b>Product Name</b>	<u><b>Tetraethyl orthosilicate</b></u>
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**SECTION 2: HAZARDS IDENTIFICATION****2.1. Classification of the substance or mixture:****Classification Regulation (EC) No 1272/2008**

Flammable liquid, Category 3, H226

Acute toxicity, Category 4, Inhalation, H332

Eye irritation, Category 2, H319

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

For the full text of the H-Statements mentioned in this Section, see Section 16.

**2.2. Label Elements:****Labeling according Regulation (EC) No 1272/2008****Pictogram****Signal word****Warning**

Hazard statement(s)

H226 Flammable liquid and vapour.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

**Precautionary statement(s)**

Prevention

P210 Keep away from heat.

Response

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

**Reduced labelling ( $\leq 125$  ml)**

**Material Safety Data Sheet**

<b>Product Name</b>	<u>Tetraethyl orthosilicate</u>
---------------------	---------------------------------

**Pictogram**



**Signal word**

**Warning**

**2.3. Other Hazards:**

None Known

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1. Substances:** Tetraethyl orthosilicate

**3.2. Mixtures:**

<b>Component</b>	<b>CAS-No</b>	<b>EC-No.</b>	<b>Weight %</b>
Tetraethyl orthosilicate	78-10-4	201-083-8	>95

**SECTION 4: FIRST AID MEASURES**

**4.1. Description of first aid measures:**

- **General advice**

Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

- **If inhaled**

Fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

- **If Contact with skin**

Take off immediately all contaminated clothing. Rinse skin with water/ shower.

- **In case of eye contact**

Rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

- **If swallowed**

Immediately make victim drink water (two glasses at most). Consult a physician.

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**Material Safety Data Sheet**

---

<b>Product Name</b>	<b><u>Tetraethyl orthosilicate</u></b>
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**4.2. Most important symptoms and effects, both acute and delayed:**

Irritant effects, Cough, Shortness of breath, Tiredness, narcosis

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

No information Available

**SECTION 5: FIREFIGHTING MEASURES****5.1. Extinguishing media:**

**Suitable Extinguishing Media-** Use alcohol-resistant foam, dry chemical or carbon dioxide.

**Unsuitable extinguishing media-** For this substance/mixture no limitations of extinguishing agents are given.

**5.2. Special hazards arising from the substance or mixture:**

Combustible.

Pay attention to flashback.

Forms explosive mixtures with air at ambient temperatures.

Vapours are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

**5.3. Advice for firefighters:**

Special protective equipment for fire-fighters

In the event of fire, wear self-contained breathing apparatus.

**5.4 Further Information:**

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

**SECTION 6: ACCIDENTAL RELEASE MEASURES****6.1. Personal precautions, protective equipment and emergency procedures:**

Advice for non-emergency personnel: Do not breathe vapours, 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.

Advice for emergency responders: Protective equipment see section 8.

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**Material Safety Data Sheet**

---

<b>Product Name</b>	<u><b>Tetraethyl orthosilicate</b></u>
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**6.2. Environmental precautions:**

Do not let product enter drains. Risk of explosion.

**6.3. Methods and material for containment and cleaning up:**

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

**6.4. Reference to other sections:**

For disposal see Sections 13.

## **SECTION 7: HANDLING AND STORAGE**

**7.1. Precautions for safe handling:**

Use only under a chemical fume hood. Wear personal protective equipment/face protection.

Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

**7.2. Conditions for safe storage, including any incompatibilities:**

Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of Ignition.

**7.3. Specific end use(s):**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## **SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1. Control parameters**

Contains no substances with occupational exposure limit values.

**8.2. Exposure Controls:**

- **Appropriate Engineering Controls:**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

## Material Safety Data Sheet

Product Name	<u>Tetraethyl orthosilicate</u>
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### Personal Protective Equipment:

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

### Eye & Face Protection-

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

### Other Protective equipment-

Flame retardant antistatic protective clothing.

### Respiratory Protection-

Required when vapours/aerosols are generated.

Recommended Filter type: Filter ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

### Environmental Exposure Controls-

Do not let product enter drains. Risk of explosion.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties:

- **Appearance:** Colorless clear
- **Physical State:** Liquid
- **Odor:** Slightly Aromatic
- **Odor Threshold:** 85 mg/m<sup>3</sup>
- **pH:** No data available
- **Melting Point:** -77 °C
- **Critical Temperature:** No data available
- **Vapor Pressure:** 2 hPa at 20°C
- **Relative Vapor Density:** 7.22
- **Density:** 0.94 g/cm<sup>3</sup> at 20°C
- **Auto-Ignition Temperature:** 225°C
- **Volatility:** No data available

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**Material Safety Data Sheet**

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<b>Product Name</b>	<b><u>Tetraethyl orthosilicate</u></b>
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- **Bulk Density:** No data available
- **Viscosity, dynamic:** 65 mPa.s at 25°C
- **Water/Oil Dist. Co eff.:** No data available
- **Ionicity (in Water):** No data available
- **Lower Explosion Limit:** 1.3% (V)
- **Upper Explosion Limit:** 23% (V)
- **Boiling Point/Range:** 166 ° C - 169 ° C
- **Flash Point:** 45°C
- **Water Solubility:** At 20 °C Insoluble (Slow Decomposition)

**9.2. Other information:**

- **Molecular Formula:** C<sub>8</sub> H<sub>20</sub> O<sub>4</sub> Si
- **Molecular Weight:** 208.33 g/mol

**SECTION 10: STABILITY AND REACTIVITY****10.1. Reactivity:**

Hydrolysis

Vapors / air - mixture are explosive at intense warming

**10.2. Chemical stability:**

Sensitive to Moisture.

**10.3. Possibility of hazardous reactions:**

Violent reactions possible with: Strong oxidizing agents, Strong acids, Alkali metals, Alkaline earth metals

**10.4. Conditions to avoid:**

Exposure to Moisture.

Heating.

**10.5. Incompatible materials:**

Rubber, various plastics

**10.6. Hazardous decomposition products:**

No data available

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**Material Safety Data Sheet**

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<b>Product Name</b>	<b><u>Tetraethyl orthosilicate</u></b>
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**SECTION 11: TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects****Acute Oral toxicity**

LD50 Rat: 6,270 mg/kg

(RTECS)

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

**Acute Inhalation toxicity**

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

**Acute Dermal toxicity**

LD50 Rabbit: 5,860 mg/kg

(RTECS)

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

Causes serious eye irritation.

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

No data available

**Reproductive toxicity**

No data available

**Teratogenicity**

No data available

**Specific target organ toxicity - single exposure**

May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**

No data available



**Material Safety Data Sheet**

<b>Product Name</b>	<b><u>Tetraethyl orthosilicate</u></b>
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**Aspiration hazard**

No data available

**11.2 Further Information:**

Systemic effects:

After uptake of large quantities:

Tiredness, narcosis

Damage to:

Kidney

Other dangerous properties cannot be excluded.

Handle in accordance with good industrial hygiene and safety practice.

**SECTION 12: ECOLOGICAL INFORMATION**

**12.1. Toxicity:**

Toxicity to daphnia and other aquatic invertebrates

EC50 Daphnia magna (Water flea): > 844 mg/l; 48 h

(Hommel)

Toxicity to bacteria

EC10 Pseudomonas putida: > 2 mg/l; 5 h

(Hommel)

**12.2 Persistence and degradability:**

Biodegradability

98 %

OECD Test Guideline 310A

Readily biodegradable

**12.3 Bioaccumulate potential:**

No data available

**12.4 Mobility in soil:**

No data available

**12.5 Results of PBT and vPvB assessment:**

Substance(s) in the mixture does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

## Material Safety Data Sheet

Product Name	<u>Tetraethyl orthosilicate</u>
--------------	---------------------------------

### 12.6 Other adverse effects:

Additional ecological information

Discharge into the environment must be avoided.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Handle un cleaned containers like the product itself.

## SECTION 14: Transport information

	Land transport (ADR/RID)	Air transport (IATA)	Sea transport (IMDG)
14.1 UN number	UN 1292	UN 1292	UN 1292
14.2 Proper shipping name	TETRAETHYL SILICATE	TETRAETHYL SILICATE	TETRAETHYL SILICATE
14.3 Class	3	3	3
14.4 Packing group	III	III	III
14.5 Environmentally hazardous	--	--	--
14.6 Special precautions for user	Yes Tunnel Restriction code – D/E	No	Yes EmS F-E S-D
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not Relevant			

## SECTION 15: Regulatory information

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

National Legislation

Storage class 3

### 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

**Material Safety Data Sheet**

<b>Product Name</b>	<u>Tetraethyl orthosilicate</u>
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**SECTION 16: Other information**

**Full text of H-Statements referred to under sections 2 and 3.**

- H226 Flammable liquid and vapors.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H335 May Cause respiratory irritation.

**Training advice**

Provide adequate information, instruction and training for operators.

**Labeling**

**Pictogram**



**Signal word**

**Warning**

**Hazard statement(s)**

- H226 Flammable liquid and vapour.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H335 May cause respiratory irritation.

**Precautionary statement(s)**

**Prevention**

P210 Keep away from heat.

**Response**

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

**References:** Not available

**Created:** 26/06/2020

**Material Safety Data Sheet**

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<b>Product Name</b>	<u><b>Tetraethyl orthosilicate</b></u>
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