

# OTTO CHEMIE PVT LTD

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ISO 9001: 2015

## MATERIAL SAFETY DATA SHEET

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

#### 1.1 Product identifiers

Tetraethyl orthosilicate, 99%

Code T 1400

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

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

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

#### 2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word Warning

Hazard statement(s)

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 surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.

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.

Supplemental Hazard

Statements

none

Reduced Labeling (<= 125 ml)

Pictogram

Signal word Warning

Hazard statement(s) none

Precautionary

statement(s)

none

Supplemental Hazard

Statements

none

#### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

Synonyms : Tetraethoxysilane

Orthosilicic acid tetraethyl ester

Formula : C<sub>8</sub>H<sub>20</sub>O<sub>4</sub>Si

Molecular weight : 208,33 g/mol

CAS-No. : 78-10-4

EC-No. : 201-083-8

Index-No. : 014-005-00-0

Component	Classification	Concentration
tetraethyl silicate		
CAS-No. 78-10-4	Flam. Liq. 3; Acute Tox. 4;	<= 100 %
EC-No. 201-083-8	Eye Irrit. 2; STOT SE 3;	
Index-No. 014-005-00-0	H226, H332, H319, H335	

#### SECTION 4: First aid measures

##### 4.1 Description of first-aid measures

###### General advice

Show this material safety data sheet to the doctor in attendance.

###### If inhaled

After inhalation: fresh air.

###### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

###### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

###### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

##### 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 (CO<sub>2</sub>) Foam Dry powder

###### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

##### 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.

Risk of dust explosion.

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

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

##### 5.4 Further information

Under fire conditions, material may decompose to form flammable and/or explosive mixtures in air. Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/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 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

###### Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

###### Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary

measures against static discharge.

Hygiene measures

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Store under nitrogen.

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

Moisture sensitive.

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

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

required

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type 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.

Control of environmental exposure

Do not let product enter drains. Risk of explosion.

## SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance

Form: liquid

Color: colorless

b) Odor

No data available

c) Odor Threshold

No data available

d) pH

No data available

e) Melting

point/freezing point

Melting point: -82,5 °C at ca.1.013 hPa

f) Initial boiling point and boiling range

168 °C - lit.

g) Flash point

45 °C - closed cup - DIN 51755 Part 1

h) Evaporation rate

No data available

i) Flammability (solid, gas)

No data available

j) Upper/lower

flammability or

explosive limits

Upper explosion limit: 23 %(V)

k) Vapor pressure

Lower explosion limit: 1,3 %(V)

l) Vapor density

< 1 hPa at 20 °C

m) Relative density

7,19 - (Air = 1.0)

n) Water solubility

No data available

o) Partition coefficient:

n-octanol/water

1,49 g/l at 23 °C at 7 hPa - soluble

p) Autoignition

log Pow: 3,18 at 40 °C - Bioaccumulation is not expected.

temperature

222 °C

at 960,8 hPa

q) Decomposition

temperature

No data available

r) Viscosity

Viscosity, kinematic: No data available

Viscosity, dynamic: 0,6 mPa.s at 20 °C

s) Explosive properties

No data available

t) Oxidizing properties No data available  
9.2 Other safety information  
Relative vapor density 7,19 - (Air = 1.0)

### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

Vapor/air-mixtures are explosive at intense warming.

#### 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

In the event of fire: see section 5

### SECTION 11: Toxicological information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Toxicity to Animals:

Oral LD50 Rat: 1500 mg/kg; Dermal LD50 Rabbit: 2000mg/kg

Inhalation LC50 Rat: > 50mg/L.

Chronic Effects on Humans: CARCINOGENIC EFFECTS: Classified None. by NTP, None. by OSHA, None. by NIOSH.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of inhalation (lung irritant).

Special Remarks on Toxicity

to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

### 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

Biodegradability aerobic - Exposure time 28 d

Result: 98 % - Readily biodegradable.

(Directive 67/548/EEC Annex V, C.4.A.)

#### 12.3 Bioaccumulative potential

No data available

#### 12.4 Mobility in soil

No data available

#### 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

#### 12.6 Other adverse effects

No data available

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

Product

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

### SECTION 14: Transport information

#### 14.1 UN number

ADR/RID: 1292

IMDG: 1292

IATA: 1292

14.2 UN proper shipping name  
ADR/RID: TETRAETHYL SILICATE  
IMDG: TETRAETHYL SILICATE  
IATA: Tetraethyl silicate  
14.3 Transport hazard class(es)  
ADR/RID: 3                   IMDG: 3                   IATA: 3  
14.4 Packaging group  
ADR/RID: III               IMDG: III               IATA: III  
14.5 Environmental hazards  
ADR/RID: yes IMDG Marine pollutant: yes IATA: no  
14.6 Special precautions for user  
No data available

**SECTION 15: Regulatory information**

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture  
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

National legislation  
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

: FLAMMABLE LIQUIDS

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

**Section 16: Other Information**

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

