# Safety Data Sheet

According to Annex II to REACH - Regulation (EU) 2020/878 and to Annex II to UK REACH

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

### 1.1. Product identifier

Code: **SPU02**
Product name **POLYCRYSTAL**

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

Intended use **Transparent adhesive sealant for construction and industry**

| Identified Uses | Industrial | Professional | Consumer |
|---|---|---|---|
| **Professional uses: public sector (administration, education, entertainment, services, crafts)** | **-** | **ERC: 8b, 8e.<br>PROC: 10, 11, 19.<br>PC: 1.** | **-** |

### 1.3. Details of the supplier of the safety data sheet

Name **Industria Chimica General S.r.l.**
Full address **Via Repubblica di San Marino 8**
District and Country **41122 Modena (MO)**
**Italy**
**Tel. (+39) 059 450991 / 059 450978**
**Fax (+39) 059 450615**
e-mail address of the competent person responsible for the Safety Data Sheet **ricerca@generalchemical.it**

Supplier: **Industria Chimica General S.r.l.**

### 1.4. Emergency telephone number

For urgent inquiries refer to

**Milano, Italy (+39) 02 66101029 Centro Antiveleni Ospedale Niguarda Ca' Granda**
**Pavia, Italy (+39) 0382 24444 Centro Antiveleni IRCSS Fondazione Maugeri**
**Bergamo, Italy (+39) 800 883300 Centro Antiveleni Ospedali Riuniti**
**Firenze, Italy (+39) 055 7947819 Centro Antiveleni Ospedale Careggi**
**Roma, Italy (+39) 06 3054343 Centro Antiveleni Policlinico Gemelli**
**Roma, Italy (+39) 06 49978000 Centro Antiveleni Policlinico Umberto I**
**Napoli, Italy (+39) 081 7472870 Centro Antiveleni Ospedale Cardarelli**

## SECTION 2. Hazards identification

### 2.1. Classification of the substance or mixture

The product is not classified as hazardous pursuant to the provisions set forth in EC Regulation 1272/2008 (CLP).
However, since the product contains hazardous substances in concentrations such as to be declared in section no. 3, it requires a safety data sheet with appropriate information, compliant to (EU) Regulation 2020/878.

Hazard classification and indication: --

### 2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

## SECTION 2. Hazards identification ... / >>

Hazard pictograms: --

Signal words: --

Hazard statements:

**EUH210** Safety data sheet available on request.

**EUH208** Contains: N-(3-(trimethoxysilyl)propyl)ethylenediamine
May produce an allergic reaction.

Precautionary statements: --

**Contains:** trimethoxyvinylsilane; trimethoxy(vinyl)silane

Product not intended for uses provided for by Directive 2004/42/EC.

### 2.3. Other hazards

The product hydrolyzes to form methanol (CAS No. 67-56-1). Methanol is toxic if inhaled, ingested and in contact with skin. Methanol causes organ damage and is easily flammable.

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.

The product does not contain substances with endocrine disrupting properties in concentration ≥ 0.1%.

trimethoxyvinylsilane; trimethoxy(vinyl)silane
Aerosol inhalation can cause damage to health.
The product hydrolysis with methanol formation (nr. Cas 67-56-1). Methanol is classified both in relation to physical dangers and to the dangers for health. The speed of hydrolysis and therefore also the relevance for the danger of the product depend strongly on the specific conditions.
Interferent properties with the endocrine - human health system: the substance/mixture does not contain components considered having the properties of endocrine interference pursuant to article 57 (f) of the Reach or the delegated regulation (EU) 2017/2100 of the Commission or Regulation (EU) 2018/605 of the Commission at levels of 0.1% or higher.
Interferent properties with the Endocrine - Environment System: the substance/mixture does not contain components considered having endocrine interference properties pursuant to article 57 (f) of the Reach or the delegated regulation (EU) 2017/2100 of the Commission or Regulation (EU) 2018/605 of the Commission at levels of 0.1% or higher.

## SECTION 3. Composition/information on ingredients

### 3.2. Mixtures

Contains:

| Identification | | x = Conc. % | Classification (EC) 1272/2008 (CLP) |
|---|---|---|---|
| **trimethoxyvinylsilane; trimethoxy(vinyl)silane** | | | |
| *INDEX* | *014-049-00-0* | 1 ≤ x < 5 | **Flam. Liq. 3 H226, Acute Tox. 4 H332, Skin Sens. 1B H317** |
| *EC* | *220-449-8* | | **LC50 Inhalation vapours: 16,8 mg/l/4h** |
| *CAS* | *2768-02-7* | | |
| *REACH Reg.* | *01-2119513215-52* | | |
| **Silane, dichlorodimethyl-, reaction products with silica** | | | |
| *INDEX* | | 1 ≤ x < 5 | |
| *EC* | *271-893-4* | | |
| *CAS* | *68611-44-9* | | |
| *REACH Reg.* | *01-2119379499-16* | | |
| **Bis(2,2,6,6-tetramethyl-4-piperidine)sebacate** | | | |
| *INDEX* | | 0,5 ≤ x < 1 | **Repr. 2 H361f, Eye Dam. 1 H318, Aquatic Acute 1 H400 M=1, Aquatic Chronic 2 H411** |
| *EC* | *258-207-9* | | |
| *CAS* | *52829-07-9* | | |
| *REACH Reg.* | *01-2119537297-32* | | |

## SECTION 3. Composition/information on ingredients ... / >>

**(3-aminopropyl) trimethoxysilane**

| | | | |
|---|---|---|---|
| *INDEX* | | 0,5 ≤ x < 1 | **Eye Dam. 1 H318, Skin Irrit. 2 H315** |
| *EC* | *237-511-5* | | |
| *CAS* | *13822-56-5* | | |
| *REACH Reg.* | *01-2119510159-45* | | |

**N-(3-(trimethoxysilyl)propyl)ethylenediamine**

| | | | |
|---|---|---|---|
| *INDEX* | | 0,5 ≤ x < 1 | **Eye Dam. 1 H318, STOT SE 3 H335, Skin Sens. 1B H317** |
| *EC* | *217-164-6* | | |
| *CAS* | *1760-24-3* | | |
| *REACH Reg.* | *01-2119970215-39* | | |

**methanol**

| | | | |
|---|---|---|---|
| *INDEX* | *603-001-00-X* | 0 ≤ x < 0,05 | **Flam. Liq. 2 H225, Acute Tox. 3 H301, Acute Tox. 3 H311, Acute Tox. 3 H331, STOT SE 1 H370** |
| *EC* | *200-659-6* | | **STOT SE 2 H371: ≥ 3%** |
| *CAS* | *67-56-1* | | **STA Oral: 100 mg/kg, STA Dermal: 300 mg/kg, STA Inhalation vapours: 3 mg/l** |
| *REACH Reg.* | *01-2119392409-28* | | |

**toluene**

| | | | |
|---|---|---|---|
| *INDEX* | *601-021-00-3* | 0,001 ≤ x < 0,005 | **Flam. Liq. 2 H225, Repr. 2 H361d, Asp. Tox. 1 H304, STOT RE 2 H373, Skin Irrit. 2 H315, STOT SE 3 H336, Aquatic Chronic 3 H412** |
| *EC* | *203-625-9* | | |
| *CAS* | *108-88-3* | | |
| *REACH Reg.* | *01-2119471310-51* | | |

The full wording of hazard (H) phrases is given in section 16 of the sheet.

Silane, dichlorodimethyl-, reaction products with silica
Nanoform: Numerical particle size distribution: d50: 2.5-50 nm
surface-treated nanoform, Coated particle properties: hydrophobic
Shape: Spheroidal
Crystallinity: amorphous nanoform
Synthetic amorphous silicon (SAS) occurs in covalently bonded particles in aggregates. Aggregates join unstably to form agglomerates.

***Supplementary information for nanoforms***

**Shape**
**Shape 1:**

**Crystallinity**
**Crystalline structure 1:**

## SECTION 4. First aid measures

### 4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.
SKIN: Remove contaminated clothing. Rinse skin with a shower immediately. Wash contaminated clothing before using it again.
INHALATION: Remove to open air. If the subject stops breathing, administer artificial respiration. Get medical advice/attention immediately.
INGESTION: Get medical advice/attention immediately. Do not induce vomiting. Do not administer anything not explicitly authorised by a doctor.

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

Specific information on symptoms and effects caused by the product are unknown.

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

Information not available

## SECTION 5. Firefighting measures

### 5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.
UNSUITABLE EXTINGUISHING EQUIPMENT

## SECTION 5. Firefighting measures ... / >>

None in particular.

### 5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
Do not breathe combustion products.

### 5.3. Advice for firefighters

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations.
SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

## SECTION 6. Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Block the leakage if there is no hazard.
Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.

### 6.2. Environmental precautions

The product must not penetrate into the sewer system or come into contact with surface water or ground water.

### 6.3. Methods and material for containment and cleaning up

Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material.
Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.

### 6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

## SECTION 7. Handling and storage

### 7.1. Precautions for safe handling

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat. Avoid leakage of the product into the environment.

### 7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Store in a cool and well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

### 7.3. Specific end use(s)

Information not available

## SECTION 8. Exposure controls/personal protection

**8.1. Control parameters**

SILANE, DICHLOROMETHYL-, REACTION PRODUCTS WITH SILICA - CAS N. 68611-44-9
VLEP ITA TWA/8h: 10 mg/m3 Notes: INHALAB
VLEP ITA TWA/8h: 10 mg/m3 Notes: RESPIR

SILICON DIOXIDE - CAS n. 112945-52-5
Threshold limit value
WEL GBR TWA/8h: 6 mg/m3 Notes: INHALAB
WEL GBR TWA/8h: 2.4 mg/m3 Notes: BREATH
TLV-ACGIH TWA/8h: 10 mg/m3 Notes: INHALAB
TLV-ACGIH TWA/8h: 3 mg/m3 Notes: BREATH
Health - Derived No Effect Level - DNEL / DMEL
Worker, Inhalation, Local Effects, chronic: 4 mg/m3

2-(2H-Benzotriazol-2-yl)-6-(1-methyl-1-phenylethyl)-4-(1,1,3,3-tetramethylbutyl)phenol
Health - Derived No Effect Level - DNEL / DMEL
Consumer, Inhalation, Local, chronic effects: 10 mg/m3
Worker, Inhalation, Local Effects, chronic: 10 mg/m3

Bis-(acetyloxy)dioctylstannan derivatives - CAS n. 93925-43-0
Threshold limit value
TLV DNK TWA/8h: 0.1 mg/m3 Tin-organiske tinforbindelser
VLA ESP TWA/8h: 0.1 mg/m3 STEL/15min: 0.2 mg/m3 Estaño (organic compounds)
VLEP FRA TWA/8h: 0.1 mg/m3 STEL/15min: 0.2 mg/m3 Étain (organic compounds)
VLEP ITA TWA/8h: 0.1 mg/m3 STEL/15min: 0.2 mg/m3 Tin (organic compounds)
WEL GBR TWA/8h: 0.1 mg/m3 STEL/15min: 0.2 mg/m3 Tin (organic compounds)
TLV-ACGIH TWA/8h: 0.1 mg/m3 STEL/15min: 0.2 mg/m3 Skin, A4 -as Sn
Health - Derived No Effect Level - DNEL / DMEL
Consumer, Oral, Systemic Effects, chronic: 0.00117 mg/kg/d
Consumer, Inhalation, Systemic Effects, chronic: 0.00203 mg/m3
Consumer, Dermal, Systemic Effects, chronic: 5.83 mg/kg/d
Worker, Inhalation, Systemic Effects, chronic: 0.0115 mg/m3
Worker, Dermal, Systemic Effects, chronic: 16.3 mg/kg/d

Regulatory references:

| | | |
|---|---|---|
| DEU | Deutschland | Forschungsgemeinschaft MAK- und BAT-Werte-Liste 2022 Ständige Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe Mitteilung 58 |
| ESP | España | Límites de exposición profesional para agentes químicos en España 2023 |
| FRA | France | Valeurs limites d'exposition professionnelle aux agents chimiques en FranceDécret n° 2021-1849 du 28 décembre 2021 |
| GRC | Ελλάδα | Π.Δ. 26/2020 (ΦΕΚ 50/Α` 6.3.2020) Εναρμόνιση της ελληνικής νομοθεσίας προς τις διατάξεις των οδηγιών 2017/2398/ΕΕ, 2019/130/ΕΕ και 2019/983/ΕΕ «για την τροποποίηση της οδηγίας 2004/37/ΕΚ ''σχετικά με την προστασία των εργαζομένων από τους κινδύνους που συνδέονται με την έκθεση σε καρκινογόνους ή μεταλλαξιγόνους παράγοντες κατά την εργασία''» |
| ITA | Italia | Decreto Legislativo 9 Aprile 2008, n.81 |
| PRT | Portugal | Decreto-Lei n.º 1/2021 de 6 de janeiro, valores-limite de exposição profissional indicativos para os agentes químicos. Decreto-Lei n.º 35/2020 de 13 de julho, proteção dos trabalhadores contra os riscos ligados à exposição durante o trabalho a agentes cancerígenos ou mutagénicos |
| POL | Polska | Rozporządzenie ministra rozwoju, pracy i technologii z dnia 18 lutego 2021 r. Zmieniające rozporządzenie w sprawie najwyższych dopuszczalnych stężeń i natężeń czynników szkodliwych dla zdrowia w środowisku pracy |
| ROU | România | Hotărârea nr. 53/2021 pentru modificarea hotărârii guvernului nr. 1.218/2006, precum și pentru modificarea și completarea hotărârii guvernului nr. 1.093/2006 |
| GBR | United Kingdom | EH40/2005 Workplace exposure limits (Fourth Edition 2020) |
| EU | OEL EU | Directive (EU) 2022/431; Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC. |
| | TLV-ACGIH | ACGIH 2023 |

## SECTION 8. Exposure controls/personal protection ... / >>

### trimethoxyvinylsilane; trimethoxy(vinyl)silane

**Threshold Limit Value**

| Type | Country | TWA/8h | | STEL/15min | | Remarks / Observations | |
|---|---|---|---|---|---|---|---|
| | | mg/m3 | ppm | mg/m3 | ppm | | |
| VLEP | ITA | 10 | 200 | | | INHAL | Aerosol |
| WEL | GBR | 266 | 200 | 333 | 250 | SKIN | Methanol |
| TLV-ACGIH | | 262 | 200 | 328 | 250 | SKIN | Metanolo |

**Predicted no-effect concentration - PNEC**

| | | |
|---|---|---|
| Normal value in fresh water | 0,4 | mg/l |
| Normal value in marine water | 0,04 | mg/l |
| Normal value for fresh water sediment | 1,5 | mg/kg |
| Normal value for marine water sediment | 0,15 | mg/kg |
| Normal value for water, intermittent release | 2,4 | mg/l |
| Normal value of STP microorganisms | 6,6 | mg/l |
| Normal value for the terrestrial compartment | 0,06 | mg/kg |

**Health - Derived no-effect level - DNEL / DMEL**

| | Effects on consumers | | | | Effects on workers | | | |
|---|---|---|---|---|---|---|---|---|
| Route of exposure | Acute local | Acute systemic | Chronic local | Chronic systemic | Acute local | Acute systemic | Chronic local | Chronic systemic |
| Oral | | | VND | 0,3 mg/kg/d | | | | |
| Inhalation | VND | 0,7 mg/m3 | VND | 6,7 mg/m3 | | | VND | 27,6 mg/m3 |
| Skin | VND | 0,1 mg/kg/d | VND | 7,8 mg/kg/d | | 0,2 mg/kg/d | VND | 3,9 mg/kg/d |

### Silane, dichlorodimethyl-, reaction products with silica

**Threshold Limit Value**

| Type | Country | TWA/8h | | STEL/15min | | Remarks / Observations |
|---|---|---|---|---|---|---|
| | | mg/m3 | ppm | mg/m3 | ppm | |
| VLEP | ITA | 10 | | | | INHAL |
| VLEP | ITA | 3 | | | | RESP |

### N-(3-(trimethoxysilyl)propyl)ethylenediamine

**Predicted no-effect concentration - PNEC**

| | | |
|---|---|---|
| Normal value in fresh water | 0,062 | mg/l |
| Normal value in marine water | 0,0062 | mg/l |
| Normal value for fresh water sediment | 0,05 | mg/kg |
| Normal value for marine water sediment | 0,005 | mg/kg |
| Normal value of STP microorganisms | 25 | mg/l |
| Normal value for the terrestrial compartment | 0,0075 | mg/kg/d |

**Health - Derived no-effect level - DNEL / DMEL**

| | Effects on consumers | | | | Effects on workers | | | |
|---|---|---|---|---|---|---|---|---|
| Route of exposure | Acute local | Acute systemic | Chronic local | Chronic systemic | Acute local | Acute systemic | Chronic local | Chronic systemic |
| Oral | | | VND | 2,5 mg/kg bw/d | | | | |
| Inhalation | | | VND | 8,7 mg/m3 | 5,36 | | VND | 35,5 mg/m3 |
| Skin | | | VND | 2,5 mg/kg bw/d | | | VND | 5 mg/kg bw/d |

## SECTION 8. Exposure controls/personal protection ... / >>

### (3-aminopropyl) trimethoxysilane

**Threshold Limit Value**

| Type | Country | TWA/8h | | STEL/15min | | Remarks / Observations |
|---|---|---|---|---|---|---|
| | | mg/m3 | ppm | mg/m3 | ppm | |
| VLEP | ITA | 260 | 200 | | | 67-56-1 Metanolo |
| OEL | EU | 260 | 200 | | | Metanolo/Methanol |
| TLV-ACGIH | | 10 | | | | INHAL Aerosol |

**Predicted no-effect concentration - PNEC**

| | | |
|---|---|---|
| Normal value in fresh water | 0,33 | mg/l |
| Normal value in marine water | 0,033 | mg/l |
| Normal value for fresh water sediment | 0,26 | mg/kg |
| Normal value of STP microorganisms | 13 | mg/l |
| Normal value for the terrestrial compartment | 0,04 | mg/kg |

**Health - Derived no-effect level - DNEL / DMEL**

| | Effects on consumers | | | | Effects on workers | | | |
|---|---|---|---|---|---|---|---|---|
| Route of exposure | Acute local | Acute systemic | Chronic local | Chronic systemic | Acute local | Acute systemic | Chronic local | Chronic systemic |
| Oral | | | | 5 mg/kg bw/d | | | | |
| Inhalation | VND | 17,4 mg/m3 | VND | 17 mg/m3 | VND | 58 mg/m3 | VND | 58 mg/m3 1h |
| Skin | VND | 5 mg/kg bw/d | VND | 5 mg/kg bw/d | VND | 8,3 mg/kg/d | VND | 8,3 mg/kg/d |

### Bis(2,2,6,6-tetramethyl-4-piperidine)sebacate

**Predicted no-effect concentration - PNEC**

| | | |
|---|---|---|
| Normal value in fresh water | 0,004 | mg/l |
| Normal value in marine water | 0,00038 | mg/l |
| Normal value for fresh water sediment | 5,9 | mg/kg |
| Normal value for marine water sediment | 0,59 | mg/kg |
| Normal value for water, intermittent release | 0,01 | mg/l |
| Normal value of STP microorganisms | 1 | mg/l |
| Normal value for the terrestrial compartment | 1,6 | mg/kg |

**Health - Derived no-effect level - DNEL / DMEL**

| | Effects on consumers | | | | Effects on workers | | | |
|---|---|---|---|---|---|---|---|---|
| Route of exposure | Acute local | Acute systemic | Chronic local | Chronic systemic | Acute local | Acute systemic | Chronic local | Chronic systemic |
| Oral | | | | 0,18 mg/kg bw/d | | | | |
| Inhalation | | | 0,31 mg/m3 | 0,31 mg/m3 | | | 0,31 mg/m3 | 1,27 mg/m3 |
| Skin | | | 0,9 mg/kg bw/d | 0,9 mg/kg bw/d | | | 0,9 mg/kg bw/d | 1,8 mg/kg bw/d |

## SECTION 8. Exposure controls/personal protection ... / >>

**methanol**

**Threshold Limit Value**

| Type | Country | TWA/8h | | STEL/15min | | Remarks / Observations | |
|---|---|---|---|---|---|---|---|
| | | mg/m3 | ppm | mg/m3 | ppm | | |
| AGW | DEU | 270 | 200 | 1080 | 800 | SKIN | |
| MAK | DEU | 130 | 100 | 260 | 200 | SKIN | |
| VLA | ESP | 266 | 200 | | | SKIN | |
| VLEP | FRA | 260 | 200 | 1300 | 1000 | SKIN | 11 |
| TLV | GRC | 260 | 200 | 325 | 250 | | |
| VLEP | ITA | 260 | 200 | | | SKIN | |
| VLE | PRT | 260 | 200 | | | SKIN | |
| NDS/NDSCh | POL | 100 | | 300 | | SKIN | |
| TLV | ROU | 260 | 200 | | | SKIN | |
| WEL | GBR | 266 | 200 | 333 | 250 | SKIN | |
| OEL | EU | 260 | 200 | | | | |
| TLV-ACGIH | | 262 | 200 | 328 | 250 | SKIN | |

**Predicted no-effect concentration - PNEC**

| | | |
|---|---|---|
| Normal value in fresh water | 154 | mg/l |
| Normal value in marine water | 15,4 | mg/l |
| Normal value for fresh water sediment | 570,4 | mg/kg |
| Normal value for water, intermittent release | 1540 | mg/l |
| Normal value of STP microorganisms | 100 | mg/l |
| Normal value for the terrestrial compartment | 23,5 | mg/kg |

**Health - Derived no-effect level - DNEL / DMEL**

| | Effects on consumers | | | | Effects on workers | | | |
|---|---|---|---|---|---|---|---|---|
| Route of exposure | Acute local | Acute systemic | Chronic local | Chronic systemic | Acute local | Acute systemic | Chronic local | Chronic systemic |
| Oral | | 4 mg/kg bw/d | | 4 mg/kg bw/d | | | | |
| Inhalation | 26 mg/m3 | 26 mg/m3 | 26 mg/m3 | 26 mg/m3 | 130 mg/m3 | 130 mg/m3 | 130 mg/m3 | 130 mg/m3 |
| Skin | NPI | 4 mg/kg bw/d | NPI | 4 mg/kg bw/d | NPI | 20 mg/kg bw/d | NPI | 20 mg/kg bw/d |

## SECTION 8. Exposure controls/personal protection ... / >>

**toluene**

**Threshold Limit Value**

| Type | Country | TWA/8h | | STEL/15min | | Remarks / Observations |
|---|---|---|---|---|---|---|
| | | mg/m3 | ppm | mg/m3 | ppm | |
| AGW | DEU | 190 | 50 | 760 | 200 | SKIN |
| MAK | DEU | 190 | 50 | 380 | 100 | SKIN |
| VLA | ESP | 192 | 50 | 384 | 100 | SKIN |
| VLEP | FRA | 76,8 | 20 | 384 | 100 | SKIN |
| TLV | GRC | 192 | 50 | 384 | 100 | |
| VLEP | ITA | 192 | 50 | | | SKIN |
| VLE | PRT | 192 | 50 | 384 | 100 | SKIN |
| NDS/NDSCh | POL | 100 | | 200 | | SKIN |
| TLV | ROU | 192 | 50 | 384 | 100 | SKIN |
| WEL | GBR | 191 | 50 | 384 | 100 | SKIN |
| OEL | EU | 192 | 50 | 384 | 100 | SKIN |
| TLV-ACGIH | | | 20 | | | |

**Predicted no-effect concentration - PNEC**

| | | |
|---|---|---|
| Normal value in fresh water | 0,68 | mg/l |
| Normal value in marine water | 0,68 | mg/l |
| Normal value for fresh water sediment | 16,39 | mg/kg |
| Normal value for marine water sediment | 16,39 | mg/kg |
| Normal value of STP microorganisms | 13,61 | mg/l |
| Normal value for the terrestrial compartment | 2,89 | mg/kg |

**Health - Derived no-effect level - DNEL / DMEL**

| | Effects on consumers | | | | Effects on workers | | | |
|---|---|---|---|---|---|---|---|---|
| Route of exposure | Acute local | Acute systemic | Chronic local | Chronic systemic | Acute local | Acute systemic | Chronic local | Chronic systemic |
| Oral | | | | 8,13 mg/kg bw/d | | | | |
| Inhalation | 226 mg/m3 | 226 mg/m3 | 56,5 mg/m3 | 56,5 mg/m3 | 384 mg/m3 | 384 mg/m3 | 192 mg/m3 | 192 mg/m3 |
| Skin | | | | 226 mg/kg bw/d | | | | 384 mg/kg bw/d |

Legend:
(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified ; LOW = low hazard ; MED = medium hazard ; HIGH = high hazard.

trimethoxyvinylsilane; trimethoxy(vinyl)silane
VLEP ITA 200 ppm Methanol

### 8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.
HAND PROTECTION
Protect your hands with category III work gloves (ref. Standard EN 374).
For the final choice of material for work gloves, the following must be considered: compatibility, degradation, breakage time and permeation.
In the case of preparations, the resistance of work gloves to chemical agents must be checked before use as it is unpredictable. Gloves have a wear time that depends on the duration and mode of use.
SKIN PROTECTION
Wear category I professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.
EYE PROTECTION
Wear splash goggles with side shields and / or protective visors complying with EN 166 and EN 165. Do not use eye lenses.
RESPIRATORY PROTECTION
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. Use a mask with a type AX filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387).
If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.
ENVIRONMENTAL EXPOSURE CONTROLS
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

## SECTION 9. Physical and chemical properties

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

| Properties | | Value | Information |
|---|---|---|---|
| Appearance | | paste | |
| Colour | | transparent | |
| Odour | | imperceptible | |
| Melting point / freezing point | < | 5 °C | |
| Initial boiling point | > | 50 °C | |
| Flammability | | not flammable | |
| Lower explosive limit | | not applicable | |
| Upper explosive limit | | not applicable | |
| Flash point | | not applicable | Reason for missing data:non infiammabile |
| Auto-ignition temperature | > | 200 °C | |
| Decomposition temperature | | 100 °C | |
| pH | | not available | Reason for missing data:substance/mixture is non-soluble (in water) |
| Kinematic viscosity | | > 20,5 mm2/s | |
| Solubility | | immiscible | |
| Partition coefficient: n-octanol/water | | not available | |
| Vapour pressure | | not available | |
| Density and/or relative density | | 1,07 kg/l | |
| Relative vapour density | | not available | |
| Particle characteristics | | not applicable | |

### 9.2. Other information

9.2.1. Information with regard to physical hazard classes

Information not available

9.2.2. Other safety characteristics

| | | | |
|---|---|---|---|
| Total solids (250°C / 482°F) | 96,62 % | | |
| VOC (Directive 2010/75/EU) | 0,70 % | - 7,49 | g/litre |
| VOC (volatile carbon) | 1,31 % | - 14,06 | g/litre |
| Explosive properties | not explosive | | |
| Oxidising properties | non-oxidizing | | |

## SECTION 10. Stability and reactivity

### 10.1. Reactivity

There are no particular risks of reaction with other substances under normal conditions of use.

toluene
Avoid exposure to: light.

### 10.2. Chemical stability

The product is stable in normal conditions of use and storage.

### 10.3. Possibility of hazardous reactions

The vapours may also form explosive mixtures with the air.

toluene
Risk of explosion on contact with: fuming sulphuric acid,nitric acid,silver perchlorate,nitrogen dioxide,non-metal halogenates,acetic acid,organic nitrocompounds.May form explosive mixtures with: air.May react dangerously with: strong oxidising agents,strong acids,sulphur.

### 10.4. Conditions to avoid

Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition.

(3-aminopropyl) trimethoxysilane

## SECTION 10. Stability and reactivity ... / >>

Moisture, heat, open flames and other sources of ignition.

### 10.5. Incompatible materials

(3-aminopropyl) trimethoxysilane
Reacts with: water, basic substances and acids. The reaction occurs with the formation of methanol.

### 10.6. Hazardous decomposition products

In the event of thermal decomposition or fire, gases and vapours that are potentially dangerous to health may be released.

(3-aminopropyl) trimethoxysilane
In case of hydrolysis: methanol. From checks it appears that at temperatures above 150°C, one is released due to oxidative decomposition
small amount of formaldehyde.

## SECTION 11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

trimethoxyvinylsilane; trimethoxy(vinyl)silane
Additional toxicological information
Hydrolysis product / impurity: methanol (CAS 67-56-1) is well and rapidly absorbed through all routes of exposure and it is toxic regardless of the type of dose taken. Methanol can cause mucosal irritation, nausea, vomiting, headache, dizziness and visual disturbances, as well as blindness (irreversible damage to the optic nerve), acidosis, muscle cramps and coma. Delays in the onset of these effects may occur following exposure.

N-(3-(trimethoxysilyl)propyl)ethylenediamine
Hydrolysis product/impurity: METHANOL (CAS 67-56-1). METHANOL is absorbed well and quickly through all the routes of exposure and is toxic regardless of the type of dose taken. Methanol can cause irritation of the mucous membranes, nausea, vomiting, headache, dizziness and visual disturbances, as well as blindness (irreversible damage to the optic nerve), acidosis, muscle cramps and coma. Delays in the onset of these effects may occur following exposure.

toluene
INHALATION May cause central nervous system depression. May cause drowsiness and dizziness; may cause damage to organs in case of prolonged or repeated exposure.
SKIN: Causes skin irritation;
EYES: Causes serious eye irritation;
INGESTION: Irritating to mouth, throat, stomach.

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

methanol
WORKERS: inhalation; contact with the skin.
POPULATION: ingestion of contaminated food or water; contact with the skin of products containing the substance.

toluene
WORKERS: inhalation; contact with the skin.
POPULATION: ingestion of contaminated food or water; inhalation of ambient air; contact with the skin of products containing the substance.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

methanol
The minimum lethal dose for humans by ingestion is considered to be in the range from 300 to 1000 mg/kg. Ingestion of 4-10 ml of the substance may cause permanent blindness in adult humans (IPCS).

## SECTION 11. Toxicological information ... / >>

toluene
Acute effects: contact with skin may cause irritation, erythema, edema, dryness and cracking. Inhalation of vapors may cause slight irritation of the upper respiratory tract. Being very volatile, it can cause serious depression of the central nervous system (CNS), with effects such as drowsiness, dizziness, loss of reflexes, narcosis. May produce functional disorders or morphological changes, by repeated or prolonged exposure by inhalation of a quantity less than or equal to 0.25 mg/l, 6 h/day. Ingestion can cause health problems, including abdominal pain with burning, nausea and vomiting. The introduction of even small quantities of liquid into the respiratory system in case of ingestion or vomiting can cause bronchopneumonia and pulmonary edema. It should be considered with suspicion due to possible teratogenic effects which can be toxic on the development of the fetus. It has a toxic action on the central and peripheral nervous system with encephalopathies and polyneuritis.

Interactive effects

toluene
Certain drugs and other industrial products can interfere with the metabolism of the toluene.

ACUTE TOXICITY

| | |
|---|---|
| ATE (Inhalation - vapours) of the mixture: | > 20 mg/l |
| ATE (Oral) of the mixture: | Not classified (no significant component) |
| ATE (Dermal) of the mixture: | Not classified (no significant component) |

trimethoxyvinylsilane; trimethoxy(vinyl)silane

| | |
|---|---|
| LD50 (Dermal): | > 3460 mg/kg Coniglio OECD 402 |
| LD50 (Oral): | > 7000 mg/kg Ratto OECD 401 |
| LC50 (Inhalation vapours): | 16,8 mg/l/4h Ratto - OECD 403 |

N-(3-(trimethoxysilyl)propyl)ethylenediamine

| | |
|---|---|
| LD50 (Dermal): | > 2000 mg/kg rabbit |
| LD50 (Oral): | 2295 mg/kg rat |
| LC50 (Inhalation vapours): | > 1,49 mg/l/4h rat |

(3-aminopropyl) trimethoxysilane

| | |
|---|---|
| LD50 (Dermal): | > 10000 mg/kg Rabbit |
| LD50 (Oral): | > 2000 mg/kg Rat |

Bis(2,2,6,6-tetramethyl-4-piperidine)sebacate

| | |
|---|---|
| LD50 (Dermal): | > 3000 mg/kg Rat |
| LD50 (Oral): | 3700 mg/kg Rat |
| LC50 (Inhalation mists/powders): | 500 mg/l/4h rat |

methanol

| | |
|---|---|
| LD50 (Dermal): | 17100 mg/kg rabbit |
| STA (Dermal): | 300 mg/kg estimate from table 3.1.2 of Annex I of the CLP (figure used for calculation of the acute toxicity estimate of the mixture) |
| LD50 (Oral): | 1187 mg/kg rat |
| LC50 (Inhalation vapours): | 437 mg/l/6h cat |

toluene

| | |
|---|---|
| LD50 (Dermal): | 12124 mg/kg Rabbit |
| LD50 (Oral): | 5580 mg/kg Rat |
| LC50 (Inhalation vapours): | 28,1 mg/l/4h Rat |

trimethoxyvinylsilane; trimethoxy(vinyl)silane
Based on the available data, no acute toxic effects are expected after a single oral exposure. Minimal toxic effects are expected in case of single dermal exposure. Moderate toxic effects are expected in case of brief inhalation exposure.

SKIN CORROSION / IRRITATION

Does not meet the classification criteria for this hazard class

SERIOUS EYE DAMAGE / IRRITATION

Does not meet the classification criteria for this hazard class

RESPIRATORY OR SKIN SENSITISATION

May produce an allergic reaction.
Contains:

## SECTION 11. Toxicological information ... / >>

N-(3-(trimethoxysilyl)propyl)ethylenediamine

trimethoxyvinylsilane; trimethoxy(vinyl)silane
According to Annex VI of Regulation (EC) no. 1272/2008, vinyltrimethoxysilane (VTMS) is classified as a category 1B skin sensitizing substance based on data from in vivo tests with laboratory animals. Furthermore, no allergic reactions have been reported following professional exposures. Mixtures with VTMS (up to 5% active substance) in polymers (polydimethylsiloxane and silane-terminated polyethers) of different viscosities up to the lower limit of 60 mPas were analyzed in the "Local Lymph node assay" (OECD 429). None of the mixtures had sensitizing potential. Taking into account the entire composition, this result, based on expert judgment, can be used for the classification and labeling of mixtures containing polymers.

Skin sensitization

N-(3-(trimethoxysilyl)propyl)ethylenediamine
In case of contact with the skin, skin sensitization is possible. The product is a skin sensitiser, subcategory 1B.
Sensitizer (guinea pig) - OECD 406
Sensitizer (mouse) - OECD 429 (LLNA)

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

trimethoxyvinylsilane; trimethoxy(vinyl)silane
In Chinese hamster ovary (CHO) cells: negative (non-mutogenic) - OECD 476
Ames test (Genetic toxicology: Salmonella typhimurium, reversion assay): negative (non-mutogenic) - OECD 471
Chromosome aberration: positive - OECD 473

N-(3-(trimethoxysilyl)propyl)ethylenediamine
On the basis of the available data, no potential of significant importance whose effect could be harmful at a genetic level is assumed.
Result/effect: negative
Species/test system: mammalian cells; mutation assay (in vitro)
Source: OECD 476

(3-aminopropyl) trimethoxysilane
Negative. OECD 471 method (bacterial cells - in vitro).
Negative. OECD method 476 (mammalian cells - in vitro).
Negative. OECD method 473 (mammalian cells - in vitro).
Negative. OECD 474 method (mouse - in vivo).

toluene
No significant effects are known.
- Negative (with and without metabolic activation)
Test system: mutation assay (in vitro) / mouse lymphoma cells; Method: OECD 476; Source: ECHA.
- Negative (with and without metabolic activation)
Test system: mutation assay (in vitro) / bacterial cells; Method: OECD 471; Source: ECHA.
- Negative
Test system: chromosome aberration assay (in vivo); Species: Rat Application method: Intraperitoneal; Cell type: bone marrow cells; Source: ECHA.

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

toluene
Classified in Group 3 (not classifiable as a human carcinogen) by the International Agency for Research on Cancer (IARC) - (IARC, 1999).
The US Environmental Protection Agency (EPA) affirms that "the data is inadequate for an assessment of the carcinogenic potential".

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

N-(3-(trimethoxysilyl)propyl)ethylenediamine
Based on available data, the criteria for classification as a reproductive toxicant have not been met.
Studies relating to effects on fertility:
NOAEL: >= 500 mg/kg
(Rat, Oral - OECD analysis report 422)
Studies relating to developmental toxicity and teratogenicity:
NOAEL (developmental): >= 500 mg/kg

## SECTION 11. Toxicological information ... / >>

NOAEL (maternal): >= 500 mg/kg
(Rat, Oral - OECD analysis report 422)

toluene
CMR EFFECTS (carcinogenic, mutagenic, toxic for reproduction): Terat: suspected of harming the fetus if inhaled.
NOAEL (parents, general toxicity): 2261 mg/m³
NOAEL (parents, fertility): 7537 mg/m³
NOAEL (descendants): 2261 mg/m³
Species: Rat, male/female
Application method: Inhalation
Dosage levels: 0 - 2261 - 7537 mg/m³
Substance to be tested: vapour
Treatment frequency: 6 hours/day 7 days/week
NOAEL (parents, general toxicity): 1875 mg/m³
NOAEL (parents, fertility): 7500 mg/m³
NOAEL (descendants): 1875 mg/m³
Test type: Two-generation study
Species: Rat, male/female
Application method: Inhalation
Dosage levels: 0 - 375 - 1875 - 7500 mg/m³
Substance to be tested: vapour
Treatment frequency: 6 hours/day 7 days/week
Method: OECD Test Guideline 416

Adverse effects on development of the offspring

(3-aminopropyl) trimethoxysilane
NOAEL (developmental): 100 mg/kg. EPA OTS 798.4900
NOAEL (maternal): 100 mg/kg. EPA OTS 798.4900

toluene
NOAEL (teratogenicity): 4500 mg/m³
NOAEL (maternal): 2250 mg/m³
NOAEL (developmental toxicity): 2250 mg/m³
Species: Rat, female
Application method: Inhalation
Dosage levels: 0 - 4500 mg/m³
Treatment frequency: 6 hours/day 7 days/week
Substance to be tested: vapour
In animal studies, toxicity to the fetus was detected.

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

toluene
Route of exposure: inhalation
target organs: Central nervous system
The vapors may have a narcotic effect.
Source: ECHA.

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

N-(3-(trimethoxysilyl)propyl)ethylenediamine
NOAEL: >= 500 mg/kg (No harmfulness level observed)
(Rat, Ingestion, 28 d - OECD analysis report 422)

toluene
TOXICITY AFTER REPEATED TAKING (subacute, subchronic, chronic): May cause drowsiness or dizziness. May cause damage to organs through prolonged or repeated exposure. It has a toxic effect on the central and peripheral nervous system with polyneuritis and encephalopathy.
SUBACUTE ORAL TOXICITY
Parameter : NOAEL(C) ( TOLUENE ; CAS No. : 108-88-3 ); Route of exposure: Oral - Effective dose: = 625 mg/kg bw/day
SUBACUTE INHALATION TOXICITY
Parameter : NOAEC ( TOLUENE ; CAS No. : 108-88-3 ); Route of exposure: Inhalation - Species: Rat - Effective dose: 1131 mg/m3
Test result(s): Central nervous system.

## SECTION 11. Toxicological information ... / >>

Target organs

(3-aminopropyl) trimethoxysilane
NOAEL: 200 mg/kg
LOAEL: 600 mg/kg
Target organ: liver (rat). OECD 408.
LOAEC: 0.147 mg/l
Target organ: respiratory tract (rat).

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

(3-aminopropyl) trimethoxysilane
Hydrolysis Product / Impurity: Methanol (CAS 67-56-1) is absorbed well and rapidly through all routes of exposure and is toxic regardless of the type of dose taken. Methanol can cause mucosal irritation, nausea, vomiting, headache, dizziness and visual disturbances, as well as blindness (irreversible damage to the optic nerve), acidosis, muscle cramps and coma. Delays in the appearance of these effects may occur following exposure.

toluene
ASPIRATION: May cause serious injury (chemical pneumonitis) to the lungs after ingestion and entry into the airways.

### 11.2. Information on other hazards

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

## SECTION 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or contaminate soil or vegetation.

### 12.1. Toxicity

| | |
|---|---|
| (3-aminopropyl) trimethoxysilane | |
| LC50 - for Fish | > 934 mg/l/96h Danio rerio |
| EC50 - for Crustacea | 331 mg/l/48h Daphnia magna |
| EC50 - for Algae / Aquatic Plants | > 1000 mg/l/72h Desmodesmus subspicatus |
| Chronic NOEC for Algae / Aquatic Plants | 1,3 mg/l Desmodesmus subspicatus |
| trimethoxyvinylsilane; trimethoxy(vinyl)silane | |
| LC50 - for Fish | 191 mg/l/96h Oncorhynchus mykiss |
| EC50 - for Crustacea | 169 mg/l/48h Daphnia magna |
| EC50 - for Algae / Aquatic Plants | 210 mg/l/72h Selenastrum capricornutum |
| EC10 for Algae / Aquatic Plants | 32 mg/l/7d Selenastrum capricornutum |
| Chronic NOEC for Crustacea | 28 mg/l Daphnia magna |
| Chronic NOEC for Algae / Aquatic Plants | 25 mg/l Selenatrum capricornutum |
| toluene | |
| EC50 - for Algae / Aquatic Plants | 12500 ppm |
| methanol | |
| EC50 - for Algae / Aquatic Plants | 22 mg/l/72h |
| Bis(2,2,6,6-tetramethyl-4-piperidine)sebacate | |
| LC50 - for Fish | 4,4 mg/l/96h Oncorhynchus mykiss |
| EC50 - for Crustacea | 8,58 mg/l/48h Daphnia magna |
| EC50 - for Algae / Aquatic Plants | 0,705 mg/l/72h Pseudokirchneriella subcapitata |
| Chronic NOEC for Crustacea | 4 mg/l Daphnia magna |
| N-(3-(trimethoxysilyl)propyl)ethylenediamine | |
| LC50 - for Fish | 597 mg/l/96h Barbo zebrato (Danio rerio), (misurato) |
| EC50 - for Crustacea | 81 mg/l/48h Daphnia magna (nominale) |
| EC50 - for Algae / Aquatic Plants | 8,8 mg/l/72h Pseudokirchneriella subcapitata (nominale) |
| Chronic NOEC for Crustacea | > 1 mg/l Daphnia magna (21 d) (nominale) |
| Chronic NOEC for Algae / Aquatic Plants | 3,1 mg/l Pseudokirchneriella subcapitata - OECD 201 |

### 12.2. Persistence and degradability

## SECTION 12. Ecological information ... / >>

N-(3-(trimethoxysilyl)propyl)ethylenediamine
Reacts with water to develop methanol and silanol and/or siloxanol compounds. Methanol is easily biodegradable. Compounds of silanol and/or siloxanol: non-biodegradable.
Hydrolysis
Result: half-period; 0.025 h
Test system: pH 7; 24.7°C
Source: OECD 111

(3-aminopropyl) trimethoxysilane
Hydrolysis:
Half-period 8.5 h: pH 7, 24.7°C (OECD 111)

| | |
|---|---|
| (3-aminopropyl) trimethoxysilane | |
| NOT rapidly degradable | 67% /28 d - OECD 301A |
| trimethoxyvinylsilane; trimethoxy(vinyl)silane | |
| Solubility in water | 9400 mg/l a 20°C (hydrolitic decomposition) |
| NOT rapidly degradable | 51% / 28 d - OECD 301F |
| toluene | |
| Solubility in water | 100 - 1000 mg/l |
| Rapidly degradable | |
| methanol | |
| Solubility in water | 1000 g/l 20 °C |
| Rapidly degradable | |
| Bis(2,2,6,6-tetramethyl-4-piperidine)sebacate | |
| Solubility in water | < 1 mg/l @ 20°C |
| NOT rapidly degradable | |
| N-(3-(trimethoxysilyl)propyl)ethylenediamine | |
| Entirely degradable | |

### 12.3. Bioaccumulative potential

trimethoxyvinylsilane; trimethoxy(vinyl)silane
It is not subject to bioaccumulation; hydrolyzes.

| | |
|---|---|
| (3-aminopropyl) trimethoxysilane | |
| Partition coefficient: n-octanol/water | 0,2 20°C |
| trimethoxyvinylsilane; trimethoxy(vinyl)silane | |
| Partition coefficient: n-octanol/water | 1,1 |
| toluene | |
| Partition coefficient: n-octanol/water | 2,73 |
| BCF | 90 |
| methanol | |
| Partition coefficient: n-octanol/water | -0,77 |
| BCF | 0,2 |
| Bis(2,2,6,6-tetramethyl-4-piperidine)sebacate | |
| Partition coefficient: n-octanol/water | 0,35 Log Kow 20-25°C, pH=7 |

### 12.4. Mobility in soil

Information not available

### 12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage ≥ than 0,1%.

### 12.6. Endocrine disrupting properties

## SECTION 12. Ecological information ... / >>

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

**12.7. Other adverse effects**

Information not available

## SECTION 13. Disposal considerations

**13.1. Waste treatment methods**

Reuse, when possible. Neat product residues should be considered special non-hazardous waste.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.
CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

## SECTION 14. Transport information

The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations.

**14.1. UN number or ID number**

not applicable

**14.2. UN proper shipping name**

not applicable

**14.3. Transport hazard class(es)**

not applicable

**14.4. Packing group**

not applicable

**14.5. Environmental hazards**

not applicable

**14.6. Special precautions for user**

not applicable

**14.7. Maritime transport in bulk according to IMO instruments**

Information not relevant

## SECTION 15. Regulatory information

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

Restriction
Point 52 DI-ISO DECYL PHTHALATE (DIDP) - CAS n. 68515-49-1
REACH Reg.: 01-2119422347-43

Seveso Category - Directive 2012/18/EU: None

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

| | |
|---|---|
| Product | |
| Point | 40 |
| Contained substance | |
| Point | 75 |

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors

## SECTION 15. Regulatory information ... / >>

not applicable

Substances in Candidate List (Art. 59 REACH)
On the basis of available data, the product does not contain any SVHC in percentage ≥ than 0,1%.

Substances subject to authorisation (Annex XIV REACH)
None

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:
None

Substances subject to the Rotterdam Convention:
None

Substances subject to the Stockholm Convention:
None

Healthcare controls
Information not available

toluene
Restriction
Point 48 toluene - CAS n. 108-88-3
REACH Reg.: 01-2119471310-51-XXXX

**15.2. Chemical safety assessment**

A chemical safety assessment has been performed for the following contained substances
trimethoxyvinylsilane; trimethoxy(vinyl)silane
N-(3-(trimethoxysilyl)propyl)ethylenediamine
Bis(2,2,6,6-tetramethyl-4-piperidine)sebacate
methanol
toluene
This safety data sheet contains one or more Exposure Scenarios in an integrated form. Contents have been included in sections 1.2, 8, 9, 12, 15 and 16 of this safety data sheet.

## SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

| | |
|---|---|
| **Flam. Liq. 2** | Flammable liquid, category 2 |
| **Flam. Liq. 3** | Flammable liquid, category 3 |
| **Repr. 2** | Reproductive toxicity, category 2 |
| **Acute Tox. 3** | Acute toxicity, category 3 |
| **STOT SE 1** | Specific target organ toxicity - single exposure, category 1 |
| **Acute Tox. 4** | Acute toxicity, category 4 |
| **Asp. Tox. 1** | Aspiration hazard, category 1 |
| **STOT RE 2** | Specific target organ toxicity - repeated exposure, category 2 |
| **Eye Dam. 1** | Serious eye damage, category 1 |
| **Skin Irrit. 2** | Skin irritation, category 2 |
| **STOT SE 3** | Specific target organ toxicity - single exposure, category 3 |
| **Skin Sens. 1B** | Skin sensitization, category 1B |
| **Aquatic Acute 1** | Hazardous to the aquatic environment, acute toxicity, category 1 |
| **Aquatic Chronic 2** | Hazardous to the aquatic environment, chronic toxicity, category 2 |
| **Aquatic Chronic 3** | Hazardous to the aquatic environment, chronic toxicity, category 3 |
| **H225** | Highly flammable liquid and vapour. |
| **H226** | Flammable liquid and vapour. |
| **H361d** | Suspected of damaging the unborn child. |
| **H361f** | Suspected of damaging fertility. |
| **H301** | Toxic if swallowed. |
| **H311** | Toxic in contact with skin. |
| **H331** | Toxic if inhaled. |
| **H370** | Causes damage to organs. |
| **H332** | Harmful if inhaled. |
| **H304** | May be fatal if swallowed and enters airways. |
| **H373** | May cause damage to organs through prolonged or repeated exposure. |
| **H318** | Causes serious eye damage. |
| **H315** | Causes skin irritation. |
| **H335** | May cause respiratory irritation. |

## SECTION 16. Other information ... / >>

| | |
|---|---|
| **H317** | May cause an allergic skin reaction. |
| **H336** | May cause drowsiness or dizziness. |
| **H400** | Very toxic to aquatic life. |
| **H411** | Toxic to aquatic life with long lasting effects. |
| **H412** | Harmful to aquatic life with long lasting effects. |
| **EUH210** | Safety data sheet available on request. |

Use descriptor system:

| | | |
|---|---|---|
| **ERC** | 8b | Widespread use of reactive processing aid (no inclusion into or onto article, indoor) |
| **ERC** | 8e | Widespread use of reactive processing aid (no inclusion into or onto article, outdoor) |
| **PC** | 1 | Adhesives, sealants |
| **PROC** | 10 | Roller application or brushing |
| **PROC** | 11 | Non industrial spraying |
| **PROC** | 19 | Manual activities involving hand contact |

LEGEND:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE: Identifier in ESIS (European archive of existing substances)
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PMT: Persistent, mobile and toxic
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very persistent and very bioaccumulative
- vPvM: Very persistent and very mobile
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY
1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
13. Regulation (EU) 2017/776 (X Atp. CLP)
14. Regulation (EU) 2018/669 (XI Atp. CLP)
15. Regulation (EU) 2019/521 (XII Atp. CLP)
16. Delegated Regulation (UE) 2018/1480 (XIII Atp. CLP)
17. Regulation (EU) 2019/1148
18. Delegated Regulation (UE) 2020/217 (XIV Atp. CLP)
19. Delegated Regulation (UE) 2020/1182 (XV Atp. CLP)

## SECTION 16. Other information ... / >>

20. Delegated Regulation (UE) 2021/643 (XVI Atp. CLP)
21. Delegated Regulation (UE) 2021/849 (XVII Atp. CLP)
22. Delegated Regulation (UE) 2022/692 (XVIII Atp. CLP)
23. Delegated Regulation (UE) 2023/707

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:
The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.
This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION
Chemical and physical hazards: Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.
Health hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.
Environmental hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.

Changes to previous review:
The following sections were modified:
02 / 03 / 08 / 11 / 16.