Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 12.11.2013 Version number 10 Revision: 12.11.2013

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

· **1.1 Product identifier**

· **Trade name: KEIM Silan-100**
· **CAS Number:**
35435-21-3
· **EC number:**
252-558-1
· **Registration number** 01-2119555666-27-XXXX
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
For this product, uses according to REACH have been identified. To provide a better readibility, the uses are listed only in the annex to this safety data sheet.
· **Application of the substance / the preparation** Hydrophobing agent/ water repellent
· **Uses advised against** All other uses are not recommended.

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
KEIM MINERAL PAINTS LTD
Santok Building
Deer Park Way
Donnington Wood
Telford
Shropshire
TF2 7NA
United Kingdom
Tel: +44 1952 231250
Fax: +44 1952 231251
Url: http://www.keimpaints.co.uk

· **Further information obtainable from:**
David Pratt
Telefon: +44 1952 231250
E-Mail: sales@keimpaints.co.uk
· **1.4 Emergency telephone number:**
GBK Gefahrgut Büro GmbH
Emergency number: +49(0)6132/84463

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SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**
Flam. Liq. 3 H226 Flammable liquid and vapour.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

R10: Flammable.
· **Classification system:**
The classification is according to the latest editions of the EU-lists, and extended by company and literature data.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The substance is classified and labelled according to the CLP regulation.

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· **Hazard pictograms**

GHS02

· **Signal word** Warning

· **Hazard-determining components of labelling:**
Alkyltriethoxysilane
· **Hazard statements**
H226 Flammable liquid and vapour.
· **Precautionary statements**
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P233 Keep container tightly closed.
P370+P378 In case of fire: Use for extinction: CO2, sand, extinguishing powder.
P403+P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

*
SECTION 3: Composition/information on ingredients

· **3.1 Substances**
· **CAS No. Description**
35435-21-3 Alkyltriethoxysilane
· **Identification number(s)**
· **EC number:** 252-558-1
· **Description:** Alkoxysilane

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:**
With appearance of symptoms or in cases of doubt seek medical advice .
When seeing the doctor we suggest to present this safety data sheet.
Immediately remove any clothing soiled by the product.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Wash off immediately with water and soap and rinse well afterwards.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:**
Rinse out mouth and then drink plenty of water.

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Do not induce vomiting; call for medical help immediately.
· **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:**
CO2, sand, extinguishing powder. Do not use water.
Alcohol resistant foam
· **For safety reasons unsuitable extinguishing agents:**
Water spray
Water with full jet
· **5.2 Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
carbon oxide (COx)
silicon dioxid (SiO2)
alcohols
· **5.3 Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.
· **Additional information**
In case of fire do not breath smoke, fumes and vapours.
Collect contaminated fire fighting water separately. It must not enter the sewage system.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Avoid contact with skin and eyes.
Do not inhale fumes.
Keep away from ignition sources.
Respect the protection rules (see section 7 a. 8).
Wear protective equipment. Keep unprotected persons away.
Particular danger of slipping on leaked/spilled product.
· **6.2 Environmental precautions:**
Follow local governmental rules and regulations.
Do not allow product to reach soil, sewage system or any water course.
· **6.3 Methods and material for containment and cleaning up:**
Do not flush away with water. For small amounts: Absorb with a liquid binding material such as diatomaceous earth and dispose
of according to local/state/federal regulations. Contain larger amounts and pump up into suitable containers. Clean any slippery
coating that remains using a detergent / soap solution or another biodegradable cleaner.
Exhaust vapours.
Ensure adequate ventilation.
· **6.4 Reference to other sections**
See Section 7 for information on safe handling.

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See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling**
Keep receptacles tightly sealed.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Avoid contact with skin and eyes.
See item 8 for information about suitable protective equipment and technical precautions.
Respect the protection rules.
· **Information about fire - and explosion protection:**
Fumes can combine with air to form an explosive mixture.
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Cool endangered receptacles with water spray.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Keep in the original containers in a cool and dry place.
Store only in unopened original receptacles.
· **Information about storage in one common storage facility:**
Store away from flammable substances.
Reacts with: water, basic substances and acids. Reaction causes the formation of: ethanol.
Do not store together with acids.
Do not store together with alkalis (caustic solutions).
Store away from water.
· **Further information about storage conditions:**
Protect from humidity and water.
Store receptacle in a well ventilated area.
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
· **Storage class:** 3A
· **7.3 Specific end use(s)**
No further relevant information available.
If the annex to this safety data sheet contains exposure scenarios for end uses, the information provided therein has to be observed.

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SECTION 8: Exposure controls/personal protection

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
64-17-5 ethanol	
WEL	Long-term value: 1920 mg/m³, 1000 ppm

· **DNELs**		
35435-21-3 Alkyltriethoxysilane		
Oral	Acute - local effects, consumer	7.5 mg/kg/day (consumer)

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	Long-term - systemic effects, consumer	1.25 mg/kg/day (consumer)
Dermal	Acute - local effects, consumer	43 mg/kg/day (consumer)
	Long-term - systemic effects, consumer	7.2 mg/kg/day (consumer)
	Long-term - systemic effects, worker	12 mg/kg bw/day (worker)
Inhalative	Acute - local effects, consumer	107 mg/m³ (consumer)
	Long-term - systemic effects, consumer	17.9 mg/m³ (consumer)
	Long-term - systemic effects, worker	84 mg/m³ (worker)

· **PNECs**

35435-21-3 Alkyltriethoxysilane	
Aquatic compartment - freshwater	0.64 mg/l (freshwater)
Aquatic compartment - marine water	0.064 mg/l (marine water)
Aquatic compartment - sediment in freshwater	1107 mg/kg sed dw (sediment fresh water)
Aquatic compartment - sediment in marine water	111 mg/kg sed dw (sediment marine water)
Aquatic compartment - water, intermittent releases	1 mg/l (not specified)
Sewage treatment plant	10 mg/l (sewage treatment plant)
Terrestrial compartment - soil	896 mg/kg dw (soil)

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Immediately remove all soiled and contaminated clothing
Do not eat, drink, smoke or sniff while working.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.
· **Respiratory protection:** In case of long or strong exposure: das mask filter ABEK.
· **Protection of hands:** Protective gloves
· **Material of gloves**
suitable material e.g.:
Butyl rubber, BR
Recommended thickness of the material: ≥ 0.5 mm
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **Penetration time of glove material**
Value for the permeation: Level ≥ 3 (60 min)
The determined penetration times according to EN 374 part III are not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:** Tightly sealed goggles
· **Body protection:** Protective work clothing

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SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Fluid
Colour:	Colourless
· **Odour:**	Weak, characteristic
· **pH-value:**	Not applicable
· **Change in condition**	
Melting point/Melting range:	< -50 °C (OECD 102)
Boiling point/Boiling range:	236 °C (bei 1013 hPa)
· **Flash point:**	> 40 °C (ISO 3679)
· **Ignition temperature:**	265 °C (DIN 51794)
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· **Explosion limits:**	
Lower:	0.4 Vol % (DIN EN 1839)
Upper:	Not determined
· **Vapour pressure at 25 °C:**	6.0 hPa (EG-RL.A4)
· **Density at 20 °C:**	0.88* g/cm³ (DIN 51757)
· **Vapour density**	Not applicable
· **Evaporation rate**	Not applicable
· **Solubility in / Miscibility with**	
water at 20 °C:	< 0.00025 g/l Insoluble.
· **Partition coefficient (n-octanol/water):**	6.1 Log Pow
· **Viscosity:**	
Dynamic at 25 °C:	1.9* mPas (DIN 51562)
· **9.2 Other information**	Explosion limits for released ethanol: 3,5 - 15% (V). * The values are for freshly produced material and may change with the time.

SECTION 10: Stability and reactivity

· **10.1 Reactivity**
· **10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
· **10.3 Possibility of hazardous reactions** No dangerous reactions known.
· **10.4 Conditions to avoid** Humidity
· **10.5 Incompatible materials:**
water

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Bases
Acids

· **10.6 Hazardous decomposition products:**
In case of fire, the following can be released:
carbon oxide (COx)
silicon dioxid (SiO2)
Ethanol
No hazardous decomposition products if stored and handled as prescribed.

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SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**		
35435-21-3 Alkyltriethoxysilane		
Oral	LD50	>2000 mg/kg (rat) (OECD 423)
Dermal	LD50	>2000 mg/kg (rat) (OECD 402)

· **Primary irritant effect:**
· **on the skin:**
No irritant effect.
Rabbit
OECD 404
· **on the eye:**
not irritating on rabbit eye
OECD 405
· **during swallowing:** Irritant effect possible
· **Sensitization:**
not sensitizing on guinea-pig
(Magnusson-Kligmann)
OECD 406
· **Additional toxicological information:**
When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.
· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)** not applicable

*
SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**	
35435-21-3 Alkyltriethoxysilane	
EC 50/3h	>100 mg/l (sewage sludge)
NOEC	(21d), 32 mg/l (daphnia) (reproduction)

· **12.2 Persistence and degradability** Not easily biodegradable
· **12.3 Bioaccumulative potential** Product(s) of hydrolysis: log Pow ≤ 3,0
· **12.4 Mobility in soil** No further relevant information available.

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· **Additional ecological information:**
· **AOX-indication:**
Due to the substance of content which do not include organic jointed halogens, the product can not take influence on the AOX-load of the waste water.
· **According to the formulation contains the following heavy metals and compounds from the EU guideline NO. 2006/11/EC:**
According to our current data base the product does not consist of any heavy metals or substances of EU-directives 76/464/EWG.
· **General notes:**
The product may not be released into the environment without control.
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Disposal must be made according to official regulations.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Dispose of according to regulations by incineration in a special waste incinerator. Observe local/state/federal regulations.

· **European waste catalogue**	
07 01 99	wastes not otherwise specified

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· **14.1 UN-Number**	
· **ADR, IMDG, IATA**	Void
· **14.2 UN proper shipping name**	
· **ADR, IMDG, IATA**	Void
· **14.3 Transport hazard class(es)**	
· **ADR, IMDG, IATA**	
· **Class**	Void
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	Void
· **14.5 Environmental hazards:**	
· **Marine pollutant:**	No

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· **14.6 Special precautions for user**	Not applicable.
· **14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	No dangerous good in sense of these transport regulations. Substance does not sustain combustion!
· **UN "Model Regulation":**	-

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SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Labelling according to Regulation (EC) No 1272/2008**
For information on labelling please refer to section 2 of this document.

· **National regulations:**

· **Information about limitation of use:**
Employment restrictions concerning juveniles must be observed.
Employment restrictions concerning pregnant and lactating women must be observed.

· **Waterhazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.
· **Other regulations, limitations and prohibitive regulations**
· **Please note:**
TRGS 200 (Germany)
TRGS 500 (Germany)
TRGS 510 (Germany)
TRGS 900 (Germany)
· **Product-Code/Giscode:** ESI10
· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

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SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing MSDS:** KEIMFARBEN Germany, Product safety department
· **Contact:** Mrs. Popescu
· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organization
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
TRGS: Technische Regeln für Gefahrstoffe (Technical Rules for Dangerous Substances, BAuA, Germany)
VOC: Volatile Organic Compounds (USA, EU)

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DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
EC10: Effective concentration at 10% mortality rate.
EC50: Half maximal effective concentration.
LC10: Lethal concentration at 10% mortality rate.
NOEC: No observed effect concentration.
REACH: Registration, Evaluation and Authorisation of Chemicals (Regulation (EC) No.1907/2006)

· *** Data compared to the previous version altered.**

· **This safety data sheet contains an annex !**

KEIM Silan-100

Annex to the Safety Data Sheet According to Article 31(7) of Regulation 1907/2006/EC (REACH)

General information:

Please send requests for additional uses or for extension of exposure scenarios to the following e-mail address: sales@keimpaints.co.uk

All identified uses have been summarized tabularly. The uses are linked to the subsequently described exposure scenarios by the sequential exposure scenario number given in the table.

Identified uses with exposure scenarios:

Conditions for safe use, and - if applicable - a more detailed specification of the categories, can be found in related the exposure scenarios (ES) which are indicated in the right column.
Please note: Exposure scenarios usually are based only on single registered substances and their uses. Mixtures might contain other hazardous substances which require additional measures.

Formulation of coatings and plasters; industrial	ES No.
SU3 – ERC2, ERC5 – PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9 – SU10, SU13 – PC9a, PC9b	**1**

Use of coatings and plasters; professional	ES No.
SU22 – ERC5, ERC8c, ERC8f – PROC10, PROC11, PROC19 – SU13, SU19 – PC9a, PC9b	**2**

Use of coatings and plasters; consumer	ES No.
SU21 – ERC5, ERC8c, ERC8f – PROC10, PROC11, PROC19 – SU13, SU19 – PC9a, PC9b	**3**

Formulation of masonry treatment products; industrial	ES No.
SU3 – ERC2, ERC5 – PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9 – SU10, SU13 – PC0	**4**

In mass hydrophobation; industriell	ES No.
SU3 – ERC2, ERC5, ERC6a, ERC8f – PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC19 – SU10, SU13, SU19 – PC15, PC0	**5**

In mass hydrophobation; professional	ES No.
SU22 – ERC8f – PROC19 – SU13, SU19 – PC15, PC0	**6**

In mass hydrophobation; consumer	ES No.
SU21 – ERC8f – PROC19 – PC15, PC0	**7**

Use of masonry treatment products; industrial	ES No.
SU3 – ERC5, ERC6a, ERC8f – PROC7, PROC8b, PROC10, PROC13, PROC19 – SU13, SU19 – PC0	**8**

Use of masonry treatment products; professional	ES No.
SU22 – ERC8c, ERC8f – PROC10, PROC11, PROC13, PROC19 – SU13, SU19 – PC0	**9**

Use of masonry treatment products; Consumer	ES No.
SU21 – ERC8c, ERC8f – PROC10, PROC11, PROC13, PROC19 – SU13, SU19 – PC0	**10**

Use as laboratory reagent; industrial	ES No.
SU3 – PROC15 – SU24 – PC21	**11**

ES1 Formulation of coatings and plasters; industrial

1. Processes and activities covered by this description

PROC5 is considered as a worst-case for formulation processes, so PROC3 and PROC4 are not quantified.

Relevant use descriptors for this scenario:

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
ERC2: Formulation of preparations; **ERC5:** Industrial use resulting in inclusion into or onto a matrix
PROC3: Use in closed batch process (synthesis or formulation); **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises; **PROC5:** Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact); **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities; **PROC8b:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities; **PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys); **SU13:** Manufacture of other non-metallic mineral products, e.g. plasters, cement
PC9a: Coatings and paints, thinners, paint removers; **PC9b:** Fillers, putties, plasters, modelling clay

Concentration of substance in preparation/mixture or article:

The exposure scenario is based on the following ingredients:
Triethoxy(2,4,4-trimethylpentyl)silane

Relevant substance concentrations are given in the contributing scenarios. Unless otherwise stated, values in the exposure scenarios are related to the following substances, and not to the complete product.

2. Exposure scenarios

2.1 Contributing scenario controlling environmental exposure:
ERC2; ERC5

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Amounts used:

Amount per site..... : 150 t/a

Amount per site..... : 1,5 t/d

Duration and frequency of use:

Environment..... : 100 days/year

Environment factors not influenced by risk management:

Receiving Surface Water (Flow Rate): 18.000 m³/day
Dilution factor (river)..... : 10
Dilution factor (coastal areas) ..... : 100

Other given operational conditions affecting environmental exposure:

Emission or release factor ..... : 0,25 % (Air)
Emission or release factor ..... : 0,5 % (Water)

Conditions and measures related to sewage treatment plant:

STP type ..... : default-sized municipal WWTP
STP effluent..... : 2.000 m³/day
Sludge treatment..... : Recovery for agriculture or horticulture can not be excluded.

Conditions and measures related to external treatment of waste for disposal:

Solid wastes are ultimately disposed of via landfill or incineration.

2.2 Contributing scenario controlling worker exposure:
PROC5

Concentration of substance in preparation/mixture or article:

<=4% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time ..... : 15 - 60 min; per shift

Risk management measures related to human health (worker):

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber . (Effectiveness: 90 %)

Goggles/face shield is required where full face respirator is not worn.

The use of a protective suit or apron is recommended.

For high vapour concentrations: Full-face respirator with filter ABEK

2.3 Contributing scenario controlling worker exposure:
PROC8a

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time ..... : 1 - 4 h; per shift

Other given operational conditions affecting worker exposure:

Outdoor/Indoor activity ..... : Indoor activity
Room volume ..... : 100 m³

Risk management measures related to human health (worker):

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber . (Effectiveness: 90 %)

Goggles/face shield is required where full face respirator is not worn.

The use of a protective suit or apron is recommended.

For high vapour concentrations: Full-face respirator with filter ABEK

2.4 Contributing scenario controlling worker exposure:
PROC8b

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time ..... : 1 - 4 h; per shift

Other given operational conditions affecting worker exposure:

Outdoor/Indoor activity ..... : Indoor activity
Room volume ..... : 100 m³

Risk management measures related to human health (worker):

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber .
(Effectiveness: 90 %)

Goggles/face shield is required where full face respirator is not worn.

The use of a protective suit or apron is recommended.

For high vapour concentrations: Full-face respirator with filter ABEK

2.5 Contributing scenario controlling worker exposure:
PROC9

Concentration of substance in preparation/mixture or article:

<=4% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time ..... : > 4 h; per shift

Risk management measures related to human health (worker):

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber .
(Effectiveness: 90 %)

Goggles/face shield is required where full face respirator is not worn.

The use of a protective suit or apron is recommended.

For high vapour concentrations: Full-face respirator with filter ABEK

3. Exposure estimation and reference to its source

DNEL and PNEC values of relevant ingredients are given in section 8 of the main part of this document.
Small numeric values in the scenario may be rounded for technical reasons.
Unless otherwise specified in the scenario, default parameters of the methods and conditions have been used.
For each type of exposure usually only the most critical value is given, without differentiation between, e.g., short term and long term exposure.
For a complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.
RCR = Risk Characterization Ratio

Exposure type	Specific conditions	Level of exposure	RCR	Method
freshwater	-	0,000453 mg/l	0,00071	EUSES 2.1.1
marine water	-	0,000181 mg/l	0,0028	EUSES 2.1.1

Sediment (freshwater)	-	0,783 mg/kg wet weight	0,0071	EUSES 2.1.1
	A factor of 10 was applied to the RCR.			
Sediment (marine water)	-	0,313 mg/kg wet weight	0,028	EUSES 2.1.1
	A factor of 10 was applied to the RCR.			
Soil	-	3,54 mg/kg wet weight	0,0040	EUSES 2.1.1
	The value was derived for the corresponding silanetriol (hydrolysis product).			
dermal	PROC 5.	0,055 mg/kg/day	0,0046	ECETOC TRA v2.0
by inhalation	PROC 5.	2,3 mg/m³	0,027	ECETOC TRA v2.0
dermal	PROC 8a.	1,37 mg/kg/day	0,11	ECETOC TRA v2.0
by inhalation	PROC 8a. 75th percentile , Handling score 3	2,23 mg/m³	0,027	Stoffenmanager 4.0
dermal	PROC 8b.	0,69 mg/kg/day	0,058	ECETOC TRA v2.0
by inhalation	PROC 8b. 75th percentile , Handling score 3	2,23 mg/m³	0,027	Stoffenmanager 4.0
dermal	PROC 9.	0,027 mg/kg/day	0,0023	ECETOC TRA v2.0
by inhalation	PROC 9.	1,1 mg/m³	0,013	ECETOC TRA v2.0

4. Evaluation guidance to downstream user

no data available .

ES2 Use of coatings and plasters; professional

1. Processes and activities covered by this description

The contribution of PROC 19 to overall exposure is negligible compared to the other PROCs, therefore PROC 19 exposure was not quantified separately. Spraying processes are automated and enclosed, so they are not considered further here.

Relevant use descriptors for this scenario:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix; **ERC8f:** Wide dispersive outdoor use resulting in inclusion into or onto a matrix
PROC10: Roller application or brushing; **PROC11:** Non industrial spraying; **PROC19:** Hand-mixing with intimate contact and only PPE available
SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement; **SU19:** Building and construction work
PC9a: Coatings and paints, thinners, paint removers; **PC9b:** Fillers, putties, plasters, modelling clay

Concentration of substance in preparation/mixture or article:

The exposure scenario is based on the following ingredients:
Triethoxy(2,4,4-trimethylpentyl)silane

Relevant substance concentrations are given in the contributing scenarios. Unless otherwise stated, values in the exposure scenarios are related to the following substances, and not to the complete product.

2. Exposure scenarios

2.1 Contributing scenario controlling environmental exposure:
ERC8c; ERC8f

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Amounts used:

A quantitative Assessment of the environmental exposure is not relevant.

Conditions and measures related to external treatment of waste for disposal:

Solid wastes are ultimately disposed of via landfill or incineration.

2.2 Contributing scenario controlling worker exposure:
PROC10; PROC11

Concentration of substance in preparation/mixture or article:

<=4% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : > 4 h; per shift

Other given operational conditions affecting worker exposure:

Outdoor/Indoor activity..... : Indoor activity

2.3 Contributing scenario controlling worker exposure:
PROC19

Concentration of substance in preparation/mixture or article:

<=4% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time ..... : > 4 h; per shift

Human factors not influenced by risk management:

Exposed skin area ..... : Palm of both hands (480 cm²).

Other given operational conditions affecting worker exposure:

Outdoor/Indoor activity ..... : Indoor activity

3. Exposure estimation and reference to its source

DNEL and PNEC values of relevant ingredients are given in section 8 of the main part of this document.
Small numeric values in the scenario may be rounded for technical reasons.
Unless otherwise specified in the scenario, default parameters of the methods and conditions have been used.
For each type of exposure usually only the most critical value is given, without differentiation between, e.g., short term and long term exposure.
For a complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.
RCR = Risk Characterization Ratio

Exposure type	Specific conditions	Level of exposure	RCR	Method
dermal	PROC 10.	1,1 mg/kg/day	0,092	ECETOC TRA v2.0
by inhalation	PROC 10. 75th percentile , No far-field source , Handling score 3	0,10 mg/m³	0,013	Stoffenmanager 4.0
dermal	PROC 11.	4,3 mg/kg/day	0,36	ECETOC TRA v2.0
by inhalation	PROC 11. 75th percentile , No far-field source , Handling score 10	3,56 mg/m³	0,042	Stoffenmanager 4.0

4. Evaluation guidance to downstream user

no data available .

ES3 Use of coatings and plasters; consumer

1. Processes and activities covered by this description

Relevant use descriptors for this scenario:

SU21: Consumer uses: Private households (= general public = consumers)
ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix; **ERC8f:** Wide dispersive outdoor use resulting in inclusion into or onto a matrix
PROC10: Roller application or brushing; **PROC11:** Non industrial spraying; **PROC19:** Hand-mixing with intimate contact and only PPE available
PC9a: Coatings and paints, thinners, paint removers; **PC9b:** Fillers, putties, plasters, modelling clay

Concentration of substance in preparation/mixture or article:

The exposure scenario is based on the following ingredients:
Triethoxy(2,4,4-trimethylpentyl)silane

Relevant substance concentrations are given in the contributing scenarios. Unless otherwise stated, values in the exposure scenarios are related to the following substances, and not to the complete product.

2. Exposure scenarios

2.1 Contributing scenario controlling environmental exposure:
ERC8c; ERC8f

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Amounts used:

A quantitative Assessment of the environmental exposure is not relevant.

Conditions and measures related to external treatment of waste for disposal:

Solid wastes are ultimately disposed of via landfill or incineration.

2.2 Contributing scenario controlling consumer exposure:
PROC10; PROC11; PROC19

Concentration of substance in preparation/mixture or article:

<=4% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

. **Amounts used:**

once per year..... : 1,000 kg (The given value refers to the amount of the mixture, not the substance.)

Duration and frequency of use:

Frequency of use ..... : once per year

Human factors not influenced by risk management:

Exposed skin area ..... : Both hands, front and back (960 cm²).

Inhalation rate ..... : 26 m³/day
Respiratory rate for light excercise.

3. Exposure estimation and reference to its source

DNEL and PNEC values of relevant ingredients are given in section 8 of the main part of this document.
Small numeric values in the scenario may be rounded for technical reasons.
Unless otherwise specified in the scenario, default parameters of the methods and conditions have been used.
For each type of exposure usually only the most critical value is given, without differentiation between, e.g., short term and long term exposure.
For a complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.
RCR = Risk Characterization Ratio

Exposure type	Specific conditions	Level of exposure	RCR	Method
dermal, short-term	Paint Products Fact Sheet (Brush/roller painting, solvent rich paint) , Langmuir evaporation model	2,22 mg/kg/day	0,052	ConsExpo 4.1
inhalative, short-term	Paint Products Fact Sheet (Brush/roller painting, solvent rich paint) , Langmuir evaporation model	0,097 mg/m³	0,00091	ConsExpo 4.1
dermal, long-term	Paint Products Fact Sheet (Brush/roller painting, solvent rich paint) , Langmuir evaporation model	0,00607 mg/kg/day	0,00084	ConsExpo 4.1
inhalative, long-term	Paint Products Fact Sheet (Brush/roller painting, solvent rich paint) , Langmuir evaporation model	0,000265 mg/m³	0,00015	ConsExpo 4.1

4. Evaluation guidance to downstream user

no data available .

ES4 Formulation of masonry treatment products; industrial

1. Processes and activities covered by this description

PROC5 is considered as a worst-case for formulation processes, so PROC3 and PROC4 are not quantified. PROC8a is considered as a worst-case for transfer and loading, so it is the only PROC that has been quantified for such activities.

Relevant use descriptors for this scenario:

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
ERC2: Formulation of preparations; **ERC5:** Industrial use resulting in inclusion into or onto a matrix
PROC2: Use in closed, continuous process with occasional controlled exposure; **PROC3:** Use in closed batch process (synthesis or formulation); **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises; **PROC5:** Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact); **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities; **PROC8b:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities; **PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys); **SU13:** Manufacture of other non-metallic mineral products, e.g. plasters, cement
PC0: Other (use UCN codes); **UCN K35900:** UCN K35900

Concentration of substance in preparation/mixture or article:

The exposure scenario is based on the following ingredients:
Triethoxy(2,4,4-trimethylpentyl)silane

Relevant substance concentrations are given in the contributing scenarios. Unless otherwise stated, values in the exposure scenarios are related to the following substances, and not to the complete product.

2. Exposure scenarios

2.1 Contributing scenario controlling environmental exposure:
ERC2; ERC5

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Amounts used:

Amount per site..... : 21 t/a

Amount per site..... : 0,7 t/d

Duration and frequency of use:

Environment..... : 30 days/year

Environment factors not influenced by risk management:

Receiving Surface Water (Flow Rate): 18.000 m³/day
Dilution factor (river)..... : 10
Dilution factor (coastal areas) ..... : 100

Other given operational conditions affecting environmental exposure:

Emission or release factor ..... : 0,25 % (Air)
Emission or release factor ..... : 0,25 % (Water)

Conditions and measures related to sewage treatment plant:

STP type ..... : default-sized municipal WWTP
STP effluent..... : 2.000 m³/day
Sludge treatment..... : Recovery for agriculture or horticulture can not be excluded.

Conditions and measures related to external treatment of waste for disposal:

Solid wastes are ultimately disposed of via landfill or incineration.

2.2 Contributing scenario controlling worker exposure:
PROC5

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : 15 - 60 min; per shift

Risk management measures related to human health (worker):

Local exhaust ventilation required. (Effectiveness: 95 %)

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber . (Effectiveness: 90 %)

Goggles/face shield is required where full face respirator is not worn.

The use of a protective suit or apron is recommended.

For high vapour concentrations: Full-face respirator with filter ABEK

2.3 Contributing scenario controlling worker exposure:
PROC8a; PROC8b; PROC9

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : > 4 h; per shift

Other given operational conditions affecting worker exposure:

Outdoor/Indoor activity..... : Indoor activity
Room volume..... : 100 m³

Risk management measures related to human health (worker):

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber . (Effectiveness: 90 %)

Goggles/face shield is required where full face respirator is not worn.

The use of a protective suit or apron is recommended.

For high vapour concentrations: Full-face respirator with filter ABEK

3. Exposure estimation and reference to its source

DNEL and PNEC values of relevant ingredients are given in section 8 of the main part of this document.
Small numeric values in the scenario may be rounded for technical reasons.
Unless otherwise specified in the scenario, default parameters of the methods and conditions have been used.
For each type of exposure usually only the most critical value is given, without differentiation between, e.g., short term and long term exposure.
For a complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.
RCR = Risk Characterization Ratio

Exposure type	Specific conditions	Level of exposure	RCR	Method
freshwater	-	0,00643 mg/l	0,010	EUSES 2.1.1
marine water	-	0,000643 mg/l	0,010	EUSES 2.1.1
Sediment (freshwater)	-	11,1 mg/kg wet weight	0,10	EUSES 2.1.1
	A factor of 10 was applied to the RCR.			
Sediment (marine water)	-	1,11 mg/kg wet weight	0,10	EUSES 2.1.1
	A factor of 10 was applied to the RCR.			
Soil	-	1,05 mg/kg wet weight	0,0012	EUSES 2.1.1
	The value was derived for the corresponding silanetriol (hydrolysis product).			
dermal	PROC 5.	0,0069 mg/kg/day	0,00058	ECETOC TRA v2.0
by inhalation	PROC 5.	1,1 mg/m³	0,013	ECETOC TRA v2.0
dermal	PROC 8a.	1,37 mg/kg/day	0,11	ECETOC TRA v2.0
by inhalation	PROC 8a. 75th percentile , Handling score 3	2,23 mg/m³	0,027	Stoffenmanager 4.0

4. Evaluation guidance to downstream user

no data available .

ES5 In mass hydrophobation; industriell

1. Processes and activities covered by this description

PROC5 is considered as a worst-case for formulation processes, so PROC3 and PROC4 are not quantified. PROC8a is considered as a worst-case for transfer and loading, so it is the only PROC that has been quantified for such activities. Information on some activities are taken from a different exposure scenario which can be regarded as worst case.

Relevant use descriptors for this scenario:

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
ERC2: Formulation of preparations; **ERC5:** Industrial use resulting in inclusion into or onto a matrix; **ERC6a:** Industrial use resulting in manufacture of another substance (use of intermediates); **ERC8f:** Wide dispersive outdoor use resulting in inclusion into or onto a matrix
PROC3: Use in closed batch process (synthesis or formulation); **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises; **PROC5:** Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact); **PROC7:** Industrial spraying; **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities; **PROC8b:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities; **PROC9:** Transfer of substance or preparation into small containers (dedicated filling line, including weighing); **PROC19:** Hand-mixing with intimate contact and only PPE available
SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys); **SU13:** Manufacture of other non-metallic mineral products, e.g. plasters, cement; **SU19:** Building and construction work
PC15: Non-metal-surface treatment products; **PC0:** Other (use UCN codes); **UCN K35900:** UCN K35900

Concentration of substance in preparation/mixture or article:

The exposure scenario is based on the following ingredients:
Triethoxy(2,4,4-trimethylpentyl)silane

Relevant substance concentrations are given in the contributing scenarios. Unless otherwise stated, values in the exposure scenarios are related to the following substances, and not to the complete product.

2. Exposure scenarios

2.1 Contributing scenario controlling environmental exposure: ERC2; ERC5; ERC6a; ERC8f

For environmental exposure, only the industrial formulation stage was assessed. End use is covered by other exposure scenarios.

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Amounts used:

Amount per site..... : 20 t/a

Amount per site..... : 0,54 t/d

Duration and frequency of use:

Environment..... : 37 days/year

Environment factors not influenced by risk management:

Receiving Surface Water (Flow Rate): 18.000 m³/day
Dilution factor (river)..... : 10
Dilution factor (coastal areas) ..... : 100

Other given operational conditions affecting environmental exposure:

Emission or release factor ..... : 0 % (Air)
Emission or release factor ..... : 0,7 % (Water)

Conditions and measures related to sewage treatment plant:

STP type ..... : default-sized municipal WWTP
STP effluent..... : 2.000 m³/day
Sludge treatment..... : Recovery for agriculture or horticulture can not be excluded.

Conditions and measures related to external treatment of waste for disposal:

Solid wastes are ultimately disposed of via landfill or incineration.

2.2 Contributing scenario controlling worker exposure:
PROC5

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : 15 - 60 min; per shift

Risk management measures related to human health (worker):

Local exhaust ventilation required. (Effectiveness: 95 %)

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber . (Effectiveness: 90 %)

Goggles/face shield is required where full face respirator is not worn.

The use of a protective suit or apron is recommended.

For high vapour concentrations: Full-face respirator with filter ABEK

2.3 Contributing scenario controlling worker exposure:
PROC7

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : 15 - 60 min; per shift

Other given operational conditions affecting worker exposure:

Outdoor/Indoor activity..... : Indoor activity
Room volume..... : 100 m³

Risk management measures related to human health (worker):

Local exhaust ventilation required. (Effectiveness: 95 %)

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber . (Effectiveness: 90 %)

Goggles/face shield is required where full face respirator is not worn.

The use of a protective suit or apron is recommended.

For high vapour concentrations: Full-face respirator with filter ABEK

2.4 Contributing scenario controlling worker exposure:
PROC8a; PROC8b; PROC9

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : > 4 h; per shift

Other given operational conditions affecting worker exposure:

Outdoor/Indoor activity..... : Indoor activity
Room volume..... : 100 m³

Risk management measures related to human health (worker):

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber .
(Effectiveness: 90 %)

Goggles/face shield is required where full face respirator is not worn.

The use of a protective suit or apron is recommended.

For high vapour concentrations: Full-face respirator with filter ABEK

2.5 Contributing scenario controlling worker exposure:
PROC19

Concentration of substance in preparation/mixture or article:

<=1% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : > 4 h; per shift

Risk management measures related to human health (worker):

The use of a protective suit or apron is recommended.

3. Exposure estimation and reference to its source

DNEL and PNEC values of relevant ingredients are given in section 8 of the main part of this document.
Small numeric values in the scenario may be rounded for technical reasons.
Unless otherwise specified in the scenario, default parameters of the methods and conditions have been used.
For each type of exposure usually only the most critical value is given, without differentiation between, e.g., short term and long term exposure.
For a complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.
RCR = Risk Characterization Ratio

Exposure type	Specific conditions	Level of exposure	RCR	Method
freshwater	-	0,00710 mg/l	0,011	EUSES 2.1.1
marine water	-	0,000710 mg/l	0,011	EUSES 2.1.1
Sediment (freshwater)	-	12,3 mg/kg wet weight	0,11	EUSES 2.1.1
	A factor of 10 was applied to the RCR.			
Sediment (marine water)	-	1,23 mg/kg wet weight	0,11	EUSES 2.1.1
	A factor of 10 was applied to the RCR.			
Soil	-	8,69 mg/kg wet weight	0,0097	EUSES 2.1.1
	The value was derived for the corresponding silanetriol (hydrolysis product).			
dermal	PROC 5.	0,0069 mg/kg/day	0,00058	ECETOC TRA v2.0
	The values are derived from a scenario with higher exposition.			
by inhalation	PROC 5.	1,1 mg/m³	0,013	ECETOC TRA v2.0
	The values are derived from a scenario with higher exposition.			
dermal	PROC 7.	0,22 mg/kg/day	0,018	ECETOC TRA v2.0
by inhalation	PROC 7. 75th percentile , Handling score 3 , without local exhaust ventilation , No far-field source	4,91 mg/m³	0,058	Stoffenmanager 4.0
dermal	PROC 8a.	1,37 mg/kg/day	0,11	ECETOC TRA v2.0
	The values are derived from a scenario with higher exposition.			
by inhalation	PROC 8a. 75th percentile , Handling score 3	2,23 mg/m³	0,027	Stoffenmanager 4.0
	The values are derived from a scenario with higher exposition.			
dermal	PROC 19.	1,42 mg/kg/day	0,12	ECETOC TRA v2.0
by inhalation	PROC 19.	28,3 mg/m³	0,34	ECETOC TRA v2.0

4. Evaluation guidance to downstream user

no data available .

ES6 In mass hydrophobation; professional

1. Processes and activities covered by this description

Relevant use descriptors for this scenario:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
PROC19: Hand-mixing with intimate contact and only PPE available
SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement; **SU19:** Building and construction work
PC15: Non-metal-surface treatment products; **PC0:** Other (use UCN codes); **UCN K35900:** UCN K35900

Concentration of substance in preparation/mixture or article:

The exposure scenario is based on the following ingredients:
Triethoxy(2,4,4-trimethylpentyl)silane

Relevant substance concentrations are given in the contributing scenarios. Unless otherwise stated, values in the exposure scenarios are related to the following substances, and not to the complete product.

2. Exposure scenarios

2.1 Contributing scenario controlling environmental exposure:
ERC8f

Information on environmental exposure applies to overall end use of the substance, and comprehensively covers all corresponding
exposure scenario.

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Amounts used:

A quantitative Assessment of the environmental exposure is not relevant.

Conditions and measures related to external treatment of waste for disposal:

Solid wastes are ultimately disposed of via landfill or incineration.

2.2 Contributing scenario controlling worker exposure:
PROC19

Concentration of substance in preparation/mixture or article:

<=1% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time ..... : > 4 h; per shift

3. Exposure estimation and reference to its source

DNEL and PNEC values of relevant ingredients are given in section 8 of the main part of this document.
Small numeric values in the scenario may be rounded for technical reasons.
Unless otherwise specified in the scenario, default parameters of the methods and conditions have been used.
For each type of exposure usually only the most critical value is given, without differentiation between, e.g., short term and long term exposure.
For a complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.
RCR = Risk Characterization Ratio

Exposure type	Specific conditions	Level of exposure	RCR	Method
dermal	PROC 19.	1,42 mg/kg/day	0,12	ECETOC TRA v2.0
by inhalation	PROC 19.	28,3 mg/m³	0,34	ECETOC TRA v2.0

4. Evaluation guidance to downstream user

no data available .

ES7 In mass hydrophobation; consumer

1. Processes and activities covered by this description

Relevant use descriptors for this scenario:

SU21: Consumer uses: Private households (= general public = consumers)
ERC8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix
PROC19: Hand-mixing with intimate contact and only PPE available
PC15: Non-metal-surface treatment products; **PC0:** Other (use UCN codes); **UCN K35900:** UCN K35900

Concentration of substance in preparation/mixture or article:

The exposure scenario is based on the following ingredients:
Triethoxy(2,4,4-trimethylpentyl)silane

Relevant substance concentrations are given in the contributing scenarios. Unless otherwise stated, values in the exposure scenarios are related to the following substances, and not to the complete product.

2. Exposure scenarios

2.1 Contributing scenario controlling environmental exposure:
ERC8f

Information on environmental exposure applies to overall end use of the substance, and comprehensively covers all corresponding
exposure scenario.

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Amounts used:

A quantitative Assessment of the environmental exposure is not relevant.

Conditions and measures related to external treatment of waste for disposal:

Solid wastes are ultimately disposed of via landfill or incineration.

2.2 Contributing scenario controlling consumer exposure:
PROC19

Concentration of substance in preparation/mixture or article:

<=10% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

. **Amounts used:**

once per year..... : 3,75 kg (The given value refers to the amount of the mixture, not the substance. Data are applicable for inhalative exposition.)

per work step ..... : 0,05 g (The given value refers to the amount of the mixture, not the substance. Data are applicable for dermal exposition.)

Duration and frequency of use:

Exposure time..... : 45 min; once per year (Data are applicable for inhalative exposition.)

Duration of use..... : 30 min (Data are applicable for dermal exposition.)

Human factors not influenced by risk management:

Exposed skin area ..... : Both hands and forearms (1980 cm²).

Molecular weight matrix ..... : 120 g/mol

Inhalation rate ..... : 34,7 m³/day

Mass transfer rate ..... : 0,201 m/min

Other given operational conditions affecting consumer exposure:

Room volume..... : 1 m³
Ventilation rate per hour..... : 0,6×
Uptake fraction of product..... : 100 %

3. Exposure estimation and reference to its source

DNEL and PNEC values of relevant ingredients are given in section 8 of the main part of this document.
Small numeric values in the scenario may be rounded for technical reasons.
Unless otherwise specified in the scenario, default parameters of the methods and conditions have been used.
For each type of exposure usually only the most critical value is given, without differentiation between, e.g., short term and long term exposure.
For a complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.
RCR = Risk Characterization Ratio

Exposure type	Specific conditions	Level of exposure	RCR	Method
dermal	PROC 19. Paint Products Fact Sheet (Brush/roller painting, mixing and loading) , Langmuir evaporation model	0,077 mg/kg/day	0,0018	ConsExpo 4.1
by inhalation	PROC 19. Paint Products Fact Sheet (Brush/roller painting, mixing and loading) , Langmuir evaporation model	0,0099 mg/m³	0,000093	ConsExpo 4.1

4. Evaluation guidance to downstream user

no data available .

ES8 Use of masonry treatment products; industrial

1. Processes and activities covered by this description

Relevant use descriptors for this scenario:

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
ERC5: Industrial use resulting in inclusion into or onto a matrix; **ERC6a:** Industrial use resulting in manufacture of another substance (use of intermediates); **ERC8f:** Wide dispersive outdoor use resulting in inclusion into or onto a matrix
PROC7: Industrial spraying; **PROC8b:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities; **PROC10:** Roller application or brushing; **PROC13:** Treatment of articles by dipping and pouring; **PROC19:** Hand-mixing with intimate contact and only PPE available
SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement; **SU19:** Building and construction work
PC0: Other (use UCN codes); **UCN K35900:** UCN K35900

Concentration of substance in preparation/mixture or article:

The exposure scenario is based on the following ingredients:
Triethoxy(2,4,4-trimethylpentyl)silane

Relevant substance concentrations are given in the contributing scenarios. Unless otherwise stated, values in the exposure scenarios are related to the following substances, and not to the complete product.

2. Exposure scenarios

2.1 Contributing scenario controlling environmental exposure: ERC5; ERC6a; ERC8f

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Amounts used:

Amount per site..... : 12 t/a

Amount per site..... : 0,06 t/d

Duration and frequency of use:

Environment..... : 200 days/year

Environment factors not influenced by risk management:

Receiving Surface Water (Flow Rate): 18.000 m³/day
Dilution factor (river)..... : 10
Dilution factor (coastal areas) ..... : 100

Other given operational conditions affecting environmental exposure:

Emission or release factor ..... : 15 % (Air)
Emission or release factor ..... : 0,5 % (Water)

Conditions and measures related to sewage treatment plant:

STP type ..... : default-sized municipal WWTP
STP effluent ..... : 2.000 m³/day
Sludge treatment..... : Recovery for agriculture or horticulture can not be excluded.

Conditions and measures related to external treatment of waste for disposal:

Solid wastes are ultimately disposed of via landfill or incineration.

2.2 Contributing scenario controlling worker exposure: PROC7; PROC8b; PROC10; PROC13; PROC19

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

solid - powder

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : > 4 h; per shift

Other given operational conditions affecting worker exposure:

Outdoor/Indoor activity..... : Indoor activity
Room volume..... : 100 m³

Risk management measures related to human health (worker):

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber . (Effectiveness: 90 %)

Goggles/face shield is required where full face respirator is not worn.

The use of a protective suit or apron is recommended.

For high vapour concentrations: Full-face respirator with filter ABEK

3. Exposure estimation and reference to its source

DNEL and PNEC values of relevant ingredients are given in section 8 of the main part of this document.
Small numeric values in the scenario may be rounded for technical reasons.
Unless otherwise specified in the scenario, default parameters of the methods and conditions have been used.
For each type of exposure usually only the most critical value is given, without differentiation between, e.g., short term and long term exposure.
For a complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.
RCR = Risk Characterization Ratio

Exposure type	Specific conditions	Level of exposure	RCR	Method
freshwater	-	0,0011 mg/l	0,0017	EUSES 2.1.1
marine water	-	0,00011 mg/l	0,0017	EUSES 2.1.1
Sediment (freshwater)	-	1,91 mg/kg wet weight	0,017	EUSES 2.1.1
	A factor of 10 was applied to the RCR.			
Sediment (marine water)	-	0,191 mg/kg wet weight	0,017	EUSES 2.1.1
	A factor of 10 was applied to the RCR.			
Soil	-	0,245 mg/kg wet weight	0,00027	EUSES 2.1.1
	The value was derived for the corresponding silanetriol (hydrolysis product).			
dermal	PROC 7.	4,3 mg/kg/day	0,36	ECETOC TRA v2.0
by inhalation	PROC 7. 75th percentile , Handling score 10	4,91 mg/m³	0,058	Stoffenmanager 4.0
dermal	PROC 8b.	0,69 mg/kg/day	0,058	ECETOC TRA v2.0
by inhalation	PROC 8b. 75th percentile , Handling score 3	2,23 mg/m³	0,027	Stoffenmanager 4.0
dermal	PROC 10.	2,7 mg/kg/day	0,23	ECETOC TRA v2.0
by inhalation	PROC 10. 75th percentile , Handling score 3	2,23 mg/m³	0,027	Stoffenmanager 4.0
dermal	PROC 13.	1,4 mg/kg/day	0,12	ECETOC TRA v2.0
by inhalation	PROC 13. 75th percentile , Handling score 3	2,23 mg/m³	0,027	Stoffenmanager 4.0
dermal	PROC 19.	5,66 mg/kg/day	0,47	ECETOC TRA v2.0
	The default result for this PROC is considered too conservative. The given values are based on the default result for PROC8a and PROC13, which are considered more realistic.			

by inhalation	PROC 19. 75th percentile , Handling score 3	2,23 mg/m³	0,027	Stoffenmanager 4.0

4. Evaluation guidance to downstream user

no data available .

ES9 Use of masonry treatment products; professional

1. Processes and activities covered by this description

Within the scope of this scenario, application by injection is covered by PROC13. The contribution of PROC 19 to overall exposure is negligible compared to the other PROCs, therefore PROC 19 exposure was not quantified separately.

Relevant use descriptors for this scenario:

SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix; **ERC8f:** Wide dispersive outdoor use resulting in inclusion into or onto a matrix
PROC10: Roller application or brushing; **PROC11:** Non industrial spraying; **PROC13:** Treatment of articles by dipping and pouring; **PROC19:** Hand-mixing with intimate contact and only PPE available
SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement; **SU19:** Building and construction work
PC0: Other (use UCN codes); **UCN K35900:** UCN K35900

Concentration of substance in preparation/mixture or article:

The exposure scenario is based on the following ingredients:
Triethoxy(2,4,4-trimethylpentyl)silane

Relevant substance concentrations are given in the contributing scenarios. Unless otherwise stated, values in the exposure scenarios are related to the following substances, and not to the complete product.

2. Exposure scenarios

2.1 Contributing scenario controlling environmental exposure:
ERC8c; ERC8f

Information on environmental exposure applies to overall end use of the substance, and comprehensively covers all corresponding
exposure scenario.

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Amounts used:

A quantitative Assessment of the environmental exposure is not relevant.

Conditions and measures related to external treatment of waste for disposal:

Solid wastes are ultimately disposed of via landfill or incineration.

2.2 Contributing scenario controlling worker exposure:
PROC10; PROC13

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

solid - powder

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : > 4 h; per shift

Other given operational conditions affecting worker exposure:

Outdoor/Indoor activity..... : Indoor activity

Room volume..... : 100 m³

Risk management measures related to human health (worker):

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber . (Effectiveness: 80 %)

The use of a protective suit or apron is recommended.

2.3 Contributing scenario controlling worker exposure:
PROC11

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

solid - powder

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : > 4 h; per shift

Other given operational conditions affecting worker exposure:

Outdoor/Indoor activity..... : Indoor activity
Room volume..... : 100 m³

Risk management measures related to human health (worker):

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber . (Effectiveness: 80 %)

The use of a protective suit or apron is recommended.

Full-face respirator with filter ABEK

Wear chemically resistand gloves (tested to EN374) in combination with 'basic' employee training. Recommended glove types: Protective gloves made of butyl rubber . (Effectiveness: 95 %)

2.4 Contributing scenario controlling worker exposure:
PROC19

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

solid - powder

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time..... : > 4 h; per shift

Human factors not influenced by risk management:

Exposed skin area ..... : Palm of both hands (480 cm²).

Other given operational conditions affecting worker exposure:

Outdoor/Indoor activity..... : Indoor activity
Room volume..... : 100 m³

Risk management measures related to human health (worker):

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber .
(Effectiveness: 80 %)

The use of a protective suit or apron is recommended.

3. Exposure estimation and reference to its source

DNEL and PNEC values of relevant ingredients are given in section 8 of the main part of this document.
Small numeric values in the scenario may be rounded for technical reasons.
Unless otherwise specified in the scenario, default parameters of the methods and conditions have been used.
For each type of exposure usually only the most critical value is given, without differentiation between, e.g., short term and long term exposure.
For a complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.
RCR = Risk Characterization Ratio

Exposure type	Specific conditions	Level of exposure	RCR	Method
dermal	PROC 10.	5,5 mg/kg/day	0,46	ECETOC TRA v2.0
by inhalation	PROC 10. Handling score 3 , 75th percentile , No far-field source	13,5 mg/m³	0,16	Stoffenmanager 4.0
dermal	PROC 13.	2,2 mg/kg/day	0,18	ECETOC TRA v2.0
by inhalation	PROC 13. Handling score 3 , 75th percentile , No far-field source	13,5 mg/m³	0,16	Stoffenmanager 4.0
dermal	PROC 11. Low-pressure spraying	2,3 mg/kg/day	0,19	ECETOC TRA v2.0
by inhalation	PROC 11. Handling score 3 , 75th percentile , Low-pressure spraying	13,5 mg/m³	0,16	Stoffenmanager 4.0
dermal	PROC 11. High-pressure spraying	5,4 mg/kg/day	0,45	ECETOC TRA v2.0
by inhalation	PROC 11. Handling score 10 , 75th percentile , No far-field source , High-pressure spraying	10,3 mg/m³	0,12	Stoffenmanager 4.0

4. Evaluation guidance to downstream user

no data available .

ES10 Use of masonry treatment products; Consumer

1. Processes and activities covered by this description

Within the scope of this scenario, application by injection is covered by PROC13.

Relevant use descriptors for this scenario:

SU21: Consumer uses: Private households (= general public = consumers)
ERC8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix; **ERC8f:** Wide dispersive outdoor use resulting in inclusion into or onto a matrix
PROC10: Roller application or brushing; **PROC11:** Non industrial spraying; **PROC13:** Treatment of articles by dipping and pouring; **PROC19:** Hand-mixing with intimate contact and only PPE available
PC0: Other (use UCN codes); **UCN K35900:** UCN K35900

Concentration of substance in preparation/mixture or article:

The exposure scenario is based on the following ingredients:
Triethoxy(2,4,4-trimethylpentyl)silane

Relevant substance concentrations are given in the contributing scenarios. Unless otherwise stated, values in the exposure scenarios are related to the following substances, and not to the complete product.

2. Exposure scenarios

2.1 Contributing scenario controlling environmental exposure:
ERC8c; ERC8f

Information on environmental exposure applies to overall end use of the substance, and comprehensively covers all corresponding
exposure scenario.

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Amounts used:

A quantitative Assessment of the environmental exposure is not relevant.

Conditions and measures related to external treatment of waste for disposal:

Solid wastes are ultimately disposed of via landfill or incineration.

2.2 Contributing scenario controlling consumer exposure:
PROC10

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

solid - powder

. **Amounts used:**

per application..... : 1,0 kg (The given value refers to the amount of the mixture, not the substance.)

Duration and frequency of use:

Duration of use..... : 120 min; once per year

Exposure time ..... : 120 min (Data are applicable for dermal exposition.)

Exposure time ..... : 132 min (Data are applicable for inhalative exposition.)

Human factors not influenced by risk management:

Inhalation rate ..... : 26 m³/day
Respiratory rate for light excercise.

Molecular weight matrix ..... :
The product was assessed as pure substance.

Body weight ..... : 65 kg

Other given operational conditions affecting consumer exposure:

Room volume..... : 20 m³

2.3 Contributing scenario controlling consumer exposure:
PROC11

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

solid - powder

. **Amounts used:**

per application..... : no data available

Duration and frequency of use:

Duration of use..... : 8 h; once per year

Human factors not influenced by risk management:

Body weight ..... : 65 kg

Other given operational conditions affecting consumer exposure:

Outdoor/Indoor activity..... : Outdoor activity

2.4 Contributing scenario controlling consumer exposure:
PROC13

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

solid - powder

. **Amounts used:**

per application..... : 4,082 l (Data are applicable for inhalative exposition.)

per application..... : 3,75 g (Data are applicable for dermal exposition.)

Duration and frequency of use:

Duration of use..... : 170 min; once per year

Exposure time ..... : 240 min (Data are applicable for inhalative exposition.)

Human factors not influenced by risk management:

Inhalation rate ..... : 26 m³/day
Respiratory rate for light excercise.

Release area..... : 0,01 m²

Molecular weight matrix ..... :
The product was assessed as pure substance.

Body weight ..... : 65 kg

Other given operational conditions affecting consumer exposure:

Room volume..... : 20 m³

2.5 Contributing scenario controlling consumer exposure:
PROC19

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

solid - powder

. **Amounts used:**

per application..... : 3,75 kg (Data are applicable for inhalative exposition. The given value refers to the amount of the mixture, not the substance.)

per application..... : 0,05 g (Data are applicable for dermal exposition. The given value refers to the amount of the mixture, not the substance.)

Duration and frequency of use:

Duration of use..... : 5 min; once per year

Exposure time..... : 10 min

Human factors not influenced by risk management:

Exposed skin area ..... : Both hands and forearms (1980 cm²).

Release area..... : 1 m²

Molecular weight matrix ..... : 120 g/mol

Body weight ..... : 65 kg

3. Exposure estimation and reference to its source

DNEL and PNEC values of relevant ingredients are given in section 8 of the main part of this document.
Small numeric values in the scenario may be rounded for technical reasons.
Unless otherwise specified in the scenario, default parameters of the methods and conditions have been used.
For each type of exposure usually only the most critical value is given, without differentiation between, e.g., short term and long term exposure.
For a complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.
RCR = Risk Characterization Ratio

Exposure type	Specific conditions	Level of exposure	RCR	Method
dermal, short-term	PROC 10. Paint Products Fact Sheet (Brush/roller painting, solvent rich paint)	1,97 mg/kg	0,046	ConsExpo 4.1
inhalative, short-term	PROC 10. Paint Products Fact Sheet (Brush/roller painting, solvent rich paint)	2,25 mg/m³	0,021	ConsExpo 4.1
dermal, short-term	PROC 11. Low-pressure spraying	0,082 mg/kg	0,0019	-

	The given values are based on workplace measurements.			
inhalative, short-term	PROC 11. Low-pressure spraying	4,1 mg/m³	0,038	-
	The given values are based on workplace measurements.			
dermal, short-term	PROC 13. Do-It-Yourself Products Fact Sheet (Filler and putty; Filler/putty from tubes)	2,0 mg/kg	0,046	ConsExpo 4.1
inhalative, short-term	PROC 13. Do-It-Yourself Products Fact Sheet (Filler and putty; Filler/putty from tubes)	3,77 mg/m³	0,035	ConsExpo 4.1
dermal, short-term	PROC 19. Paint Products Fact Sheet (Brush and roller painting, two-component paints, mixing and loading)	0,77 mg/kg	0,018	ConsExpo 4.1
inhalative, short-term	PROC 19. Paint Products Fact Sheet (Brush and roller painting, two-component paints, mixing and loading)	0,0121 mg/m³	0,00011	ConsExpo 4.1

4. Evaluation guidance to downstream user

no data available .

ES11 Use as laboratory reagent; industrial

1. Processes and activities covered by this description

The product is used as a reagent in laboratory scale.

Relevant use descriptors for this scenario:

SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites
PROC15: Use as laboratory reagent
SU24: Scientific research and development
PC21: Laboratory chemicals

Concentration of substance in preparation/mixture or article:

The exposure scenario is based on the following ingredients:
Triethoxy(2,4,4-trimethylpentyl)silane

Relevant substance concentrations are given in the contributing scenarios. Unless otherwise stated, values in the exposure scenarios are related to the following substances, and not to the complete product.

2. Exposure scenarios

2.1 Contributing scenario controlling environmental exposure

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Amounts used:

Assessment of environmental exposure is not appropriate. Rationale: The amounts used are of such small scale, that releses to the environment are of negligible volume.

2.2 Contributing scenario controlling worker exposure:
PROC15

Concentration of substance in preparation/mixture or article:

<=100% Triethoxy(2,4,4-trimethylpentyl)silane

Physical state during application:

liquid

Vapour pressure ..... : 0,22 Pa

The vapour pressure is related to the pure substance on which the exposure scenario is based.

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time ..... : < 15 min; per shift

Risk management measures related to human health (worker):

Local exhaust ventilation required. (Effectiveness: 90 %)

Wear suitable gloves tested to EN374. Recommended glove types: Protective gloves made of butyl rubber . (Effectiveness: 90 %)

Goggles/face shield is required where full face respirator is not worn.

The use of a protective suit or apron is recommended.

For high vapour concentrations: Full-face respirator with filter ABEK

3. Exposure estimation and reference to its source

DNEL and PNEC values of relevant ingredients are given in section 8 of the main part of this document.
Small numeric values in the scenario may be rounded for technical reasons.
Unless otherwise specified in the scenario, default parameters of the methods and conditions have been used.
For each type of exposure usually only the most critical value is given, without differentiation between, e.g., short term and long term exposure.
For a complete exposure estimation, the values for different routes of exposure and activities may have to be summed up.
RCR = Risk Characterization Ratio

Exposure type	Specific conditions	Level of exposure	RCR	Method
dermal	PROC 15.	0,034 mg/kg/day	0,0028	ECETOC TRA v2.0
by inhalation	PROC 15.	0,57 mg/m³	0,0068	ECETOC TRA v2.0

4. Evaluation guidance to downstream user

no data available .