



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

Printing date 22.10.2018

Version number 13.0

Revision: 22.10.2018

### 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 readability, the uses are listed only in the annex to this safety data sheet.

· **Application of the substance / the mixture** 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 GB-Telford, Shropshire TF2 7NA

Tel +44 1952 231 250 / Fax +44 1952 231 251

www.keim.com / sales@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 GmbH Global Regulatory Compliance

Emergency number: +49(0)6132/84463

### 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.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

· **Hazard pictograms**



GHS02

· **Signal word** Warning

· **Hazard statements**

H226 Flammable liquid and vapour.

(Contd. on page 2)



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

Printing date 22.10.2018

Version number 13.0

Revision: 22.10.2018

**Trade name: KEIM SILAN-100**

(Contd. of page 1)

· **Precautionary statements**

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P280 Wear protective gloves/protective clothing/eye protection.
- P233 Keep container tightly closed.
- P370+P378 In case of fire: Use for extinction: CO<sub>2</sub>, 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 mouth and throat well with water.

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.

GB

(Contd. on page 3)



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

Printing date 22.10.2018

Version number 13.0

Revision: 22.10.2018

Trade name: KEIM SILAN-100

(Contd. of page 2)

### SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**  
Water haze, extinguishing powder, alcohol resistant foam, CO<sub>2</sub>, sand.
- **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 (CO<sub>x</sub>)  
silicon dioxid (SiO<sub>2</sub>)  
alcohols
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information**  
In case of fire do not breathe 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.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

GB

(Contd. on page 4)



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

Printing date 22.10.2018

Version number 13.0

Revision: 22.10.2018

Trade name: KEIM SILAN-100

(Contd. of page 3)

### SECTION 7: Handling and storage

#### · 7.1 Precautions for safe handling

- Keep receptacles tightly sealed.
- Ensure good ventilation/exhaustion at the workplace.
- Do not inhale aerosols.
- Avoid contact with skin and eyes.
- See item 8 (8.2) 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:

- 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).

##### · 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: 3

#### · 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.

### SECTION 8: Exposure controls/personal protection

#### · 8.1 Control parameters

##### · Ingredients with limit values that require monitoring at the workplace:

- The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

##### · DNELs

##### 35435-21-3 Alkyltriethoxysilane

Oral	Long-term - systemic effects	9.5 mg/kg bw/day (consumer)
	Acute - systemic effects	19 mg/kg/day (consumer)
Dermal	Long-term - systemic effects	13.4 mg/kg bw/day (worker)

(Contd. on page 5)



## Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.10.2018

Version number 13.0

Revision: 22.10.2018

**Trade name: KEIM SILAN-100**

(Contd. of page 4)

Inhalative	Long-term - systemic effects	9.5 mg/kg bw/day (consumer)
	Acute - systemic effects	19 mg/kg/day (worker)
	Acute - systemic effects	67.8 mg/m <sup>3</sup> (consumer)
	Long-term - systemic effects	45 mg/m <sup>3</sup> (worker)
	Long-term - systemic effects	11.3 mg/m <sup>3</sup> (consumer)

**· 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 - water, intermittent releases	6.4 mg/l (not specified)
Aquatic compartment - sediment in freshwater	4.3 mg/kg sed dw (sediment fresh water)
Aquatic compartment - sediment in marine water	0.43 mg/kg sed dw (sediment marine water)
Terrestrial compartment - soil	0.48 mg/kg dw (soil)
Sewage treatment plant	1 mg/l (sewage treatment plant)
Oral secondary poisoning	10 mg/kg food (not specified)

**· Additional information:** The lists valid during the making were used as basis.**· 8.2 Exposure controls****· Personal protective equipment:****· General protective and hygienic measures:**

Avoid contact with the eyes and skin.

Do not inhale gases / fumes / aerosols.

Wash hands before breaks and at the end of work.

Immediately remove all soiled and contaminated clothing.

**· 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:  $\geq 0.3$  mm

Nitrile rubber, NBR

Recommended thickness of the material:  $\geq 0.1$  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  $\geq 6$  (480 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

(Contd. on page 6)



## Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.10.2018

Version number 13.0

Revision: 22.10.2018

Trade name: KEIM SILAN-100

(Contd. of page 5)

· Limitation and supervision of exposure into the environment See Section 12 and 6.2

### SECTION 9: Physical and chemical properties

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

##### · General Information

##### · Appearance:

Form:	Fluid
Colour:	Colourless
Odour:	slightly

· pH-value: Not determined

##### · Change in condition

Melting point/freezing point:	<-100 °C (OECD 102)
Initial boiling point and boiling range:	237 °C (at 1013 hPa)

· Flash point: 42 °C (ISO 3679)

· Flammability (solid, gas): Not applicable

· Ignition temperature: 251 °C (EN 14522)

· Decomposition temperature: >150 °C

· Auto-ignition temperature: Not determined

· Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

##### · Explosion limits:

Lower:	0.4 Vol %
Upper:	Not determined

· Vapour pressure at 25 °C: 0.089 hPa (EG-RL.A.4)

· Density at 20 °C: 0.9-1\* g/cm<sup>3</sup>

· Vapour density: Not applicable

· Evaporation rate: Not applicable

· Solubility in / Miscibility with water at 20 °C:

&lt;0.00025 g/l

· Partition coefficient: n-octanol/water at 20 °C: 6.1 log POW

##### · Viscosity:

Dynamic at 25 °C:	1.9* mPas (DIN 51562)
Kinematic at 20 °C:	1.98* mm <sup>2</sup> /s (DIN 51562)

(Contd. on page 7)



## Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.10.2018

Version number 13.0

Revision: 22.10.2018

**Trade name: KEIM SILAN-100**

(Contd. of page 6)

**· 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** No further relevant information available.
- **10.2 Chemical stability** Stable under normal conditions of storage and use.
- **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**  
Heat  
Flame  
Sparks  
Humidity
- **10.5 Incompatible materials:**  
Water  
Bases  
Acids
- **10.6 Hazardous decomposition products:**  
In case of fire, the following can be released:  
carbon oxide (COx)  
silicon dioxid (SiO<sub>2</sub>)  
Ethanol  
No hazardous decomposition products if stored and handled as prescribed.

### SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.

**· LD/LC50 values relevant for classification:****35435-21-3 Alkyltriethoxysilane**

Oral	LD50	>2,000 mg/kg (rat) (OECD 423)
Dermal	LD50	>2,000 mg/kg (rat) (OECD 402)
Inhalative	LC50/4 h	>11.2 mg/l (rat) (OECD 403)
	NOAEL	≥1,000 mg/kg (rat) (Analogie)

- **Primary irritant effect:**
- **Skin corrosion/irritation**  
not irritating on rabbit  
OECD 404
- **Serious eye damage/irritation**  
not irritating on rabbit eye

(Contd. on page 8)

GB



## Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 22.10.2018

Version number 13.0

Revision: 22.10.2018

**Trade name: KEIM SILAN-100**

(Contd. of page 7)

- OECD 405
- **during inhalation:** Irritant effect possible.
- **during swallowing:** Irritant effect possible
- **Respiratory or skin sensitisation**  
not sensitizing on guinea-pig  
(Magnusson-Kligmann)
- OECD 406
- **Other information (about experimental toxicology):**  
The product was not tested. The statements on toxicology have been derived from the properties of the individual components.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)** Not applicable
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Aquatic toxicity:

##### 35435-21-3 Alkyltriethoxysilane

NOEC	32 mg/l (daphnia) (OECD 211)
EC 50/3h	>100 mg/l (sewage sludge)
LC 50/96 h	>100 mg/l (fish) (OECD 203)

- **12.2 Persistence and degradability** Not easily biodegradable
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **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:**  
At present there are no ecotoxicological assessments.  
The product may not be released into the environment without control.  
Do not allow product to reach ground water, water course or sewage system.  
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

(Contd. on page 9)





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

Printing date 22.10.2018

Version number 13.0

Revision: 22.10.2018

**Trade name: KEIM SILAN-100**

(Contd. of page 8)

· **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 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**

08 01 11*	waste paint and varnish containing organic solvents or other hazardous substances
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· **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

· **14.6 Special precautions for user** Not applicable

· **14.7 Transport in bulk according to Annex II of Marpol 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":**

Void

GB

(Contd. on page 10)



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

Printing date 22.10.2018

Version number 13.0

Revision: 22.10.2018

Trade name: KEIM SILAN-100

(Contd. of page 9)

### 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.
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.
- **Seveso category** P5c FLAMMABLE LIQUIDS
- **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5.000 t
- **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50.000 t
- **Regulation (EU) No 649/2012** Not applicable
- **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)
- **Substances of very high concern (SVHC) according to REACH, Article 57** Not applicable
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

### 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 SDS:** KEIMFARBEN Germany, Product safety department
- **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 Organisation  
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 Harmonised 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)  
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

(Contd. on page 11)



Page 11/11

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

Printing date 22.10.2018

Version number 13.0

Revision: 22.10.2018

**Trade name: KEIM SILAN-100**

(Contd. of page 10)

SVHC: Substances of Very High Concern

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)

Flam. Liq. 3: Flammable liquids – Category 3

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

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

GB



# 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.
SU 3 – ERC2, ERC5 – PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9 – SU 10, SU13 – PC9a, PC9b	1
Use of coatings and plasters; professional	ES No.
SU 22 – ERC5, ERC8c, ERC8f – PROC10, PROC11, PROC19 – SU13, SU19 – PC9a, PC9b	2
Use of coatings and plasters; consumer	ES No.
SU 21 – ERC5, ERC8c, ERC8f – PROC10, PROC11, PROC19 – SU13, SU19 – PC9a, PC9b	3
Formulation of masonry treatment products; industrial	ES No.
SU 3 – ERC2, ERC5 – PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9 – SU 10, SU13 – PC0	4
In mass hydrophobation; industriell	ES No.
SU 3 – ERC2, ERC5, ERC6a, ERC8f – PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC19 – SU 10, SU13, SU19 – PC15, PC0	5
In mass hydrophobation; professional	ES No.
SU 22 – ERC8f – PROC19 – SU13, SU19 – PC15, PC0	6
In mass hydrophobation; consumer	ES No.
SU 21 – ERC8f – PROC19 – PC15, PC0	7
Use of masonry treatment products; industrial	ES No.
SU 3 – ERC5, ERC6a, ERC8f – PROC7, PROC8b, PROC10, PROC13, PROC19 – SU13, SU19 – PC0	8
Use of masonry treatment products; professional	ES No.
SU 22 – ERC8c, ERC8f – PROC10, PROC11, PROC13, PROC19 – SU13, SU19 – PC0	9
Use of masonry treatment products; Consumer	ES No.
SU 21 – ERC8c, ERC8f – PROC10, PROC11, PROC13, PROC19 – SU13, SU19 – PC0	10
Use as laboratory reagent; industrial	ES No.
SU 3 – PROC15 – SU24 – PC21	11



# KEIM SILAN-100

<b>ES1</b>	<b>Formulation of coatings and plasters; industrial</b>
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**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:**

**SU 3:** 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)

**SU 10:** 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 m<sup>3</sup>/day

Dilution factor (river)..... : 10

Dilution factor (coastal areas) ..... : 100

**Other given operational conditions affecting environmental exposure:**

Emission or release factor ..... : 0,6 % (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 m<sup>3</sup>/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:**



# KEIM SILAN-100

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

**Physical state during application:**

liquid

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

Process temperature..... : 25 °C

**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 chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 90 %)

Wear suitable coveralls to prevent exposure to the skin.

Wear eye/face protection.

**Additional good practice advice beyond the REACH CSA:**

For high vapor concentrations, use respiratory protective equipment.

**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

Process temperature..... : 25 °C

**Amounts used:**

Not of relevance.

**Duration and frequency of use:**

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

**Other given operational conditions affecting worker exposure:**

Room volume..... : > 100 m<sup>3</sup>

**Risk management measures related to human health (worker):**

Take appropriate measures to avoid static discharges. These include careful connection to electric power-points, grounding of machinery and equipment, and/or transport under protective gas. Equipment and containers must be inerted by purging with dry nitrogen. Use explosion-protected equipment/appliances and spark-free tools. Vapours/aerosols should be exhausted directly at place of formation. Adequate facilities for isolation of spilled liquids by collection or drainage have to be provided.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 90 %)

Wear suitable coveralls to prevent exposure to the skin.

Wear eye/face protection.

**Additional good practice advice beyond the REACH CSA:**

For high vapor concentrations, use respiratory protective equipment.

**2.4 Contributing scenario controlling worker exposure:**

**PROC8b**



# KEIM SILAN-100

**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

Process temperature..... : 25 °C

**Amounts used:**

Not of relevance.

**Duration and frequency of use:**

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

**Other given operational conditions affecting worker exposure:**

Room volume..... : > 100 m<sup>3</sup>

**Risk management measures related to human health (worker):**

Take appropriate measures to avoid static discharges. These include careful connection to electric power-points, grounding of machinery and equipment, and/or transport under protective gas. Equipment and containers must be inerted by purging with dry nitrogen. Use explosion-protected equipment/appliances and spark-free tools. Vapours/aerosols should be exhausted directly at place of formation. Adequate facilities for isolation of spilled liquids by collection or drainage have to be provided.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 90 %)

Wear suitable coveralls to prevent exposure to the skin.

Wear eye/face protection.

**Additional good practice advice beyond the REACH CSA:**

For high vapor concentrations, use respiratory protective equipment.

**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

Process temperature..... : 25 °C

**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 chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 90 %)

Wear suitable coveralls to prevent exposure to the skin.

Wear eye/face protection.

**Additional good practice advice beyond the REACH CSA:**

For high vapor concentrations, use respiratory protective equipment.



# KEIM SILAN-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
freshwater	-	0,0096 mg/l	0,015	EUSES 2.1.2
marine water	-	0,00096 mg/l	0,015	EUSES 2.1.2
Sediment (freshwater)	-	2,5 mg/kg dry mass	0,59	EUSES 2.1.2
Sediment (marine water)	-	0,25 mg/kg dry mass	0,59	EUSES 2.1.2
Soil	-	0,14 mg/kg dry mass	0,29	EUSES 2.1.2
sewage treatment plant	-	0,098 mg/l	0,098	EUSES 2.1.2
dermal, long-term	PROC 5.	0,055 mg/kg/day	0,0041	ECETOC TRA v3
inhalative, long-term	PROC 5.	2,3 mg/m <sup>3</sup>	0,051	ECETOC TRA v3
dermal, long-term	PROC 8a.	1,37 mg/kg/day	0,10	ECETOC TRA v3
inhalative, long-term	PROC 8a. 75th percentile , Handling score 3	2,23 mg/m <sup>3</sup>	0,050	Stoffenmanager 4.0
dermal, long-term	PROC 8b.	0,69 mg/kg/day	0,051	ECETOC TRA v3
inhalative, long-term	PROC 8b. 75th percentile , Handling score 3	2,23 mg/m <sup>3</sup>	0,050	Stoffenmanager 4.0
dermal, long-term	PROC 9.	0,027 mg/kg/day	0,0020	ECETOC TRA v3
inhalative, long-term	PROC 9.	1,1 mg/m <sup>3</sup>	0,024	ECETOC TRA v3

### 4. Evaluation guidance to downstream user

If the conditions of downstream use deviate from the measures or parameters described in the exposure scenario, the downstream use can still be considered to be within the conditions of the exposure scenario when the following criteria are met: The resulting risk characterisation ratios (RCR) for the deviating conditions, using the method described in the scenario or a compatible tool ("scaling tool"), have to be equal to or lower than the values given in the exposure scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting the process, and may vary depending on the method used for exposure assessment. Intrinsic substance properties like vapor pressure or diffusion rates and those parameters specific to the process, e.g. the exposed skin area, may not be scaled.





# KEIM SILAN-100

## 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.

#### Relevant use descriptors for this scenario:

**SU 22:** 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

**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

##### Amounts used:

For this scenario, it is not relevant to specify quantitative data. Professional users and consumers generally have no control over the environmental conditions of their use.

#### 2.2 Contributing scenario controlling worker 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

Process temperature..... : 25 °C

##### 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, long-term	PROC 10.	1,1 mg/kg/day	0,082	ECETOC TRA v3
inhalative, long-term	PROC 10. 75th percentile , Handling score 3	1,61 mg/m <sup>3</sup>	0,036	Stoffenmanager 4.0
dermal, long-term	PROC 11.	4,3 mg/kg/day	0,32	ECETOC TRA v3



# KEIM SILAN-100

inhalative, long-term	PROC 11. 75th percentile , Handling score 10	3,56 mg/m <sup>3</sup>	0,079	Stoffenmanager 4.0
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#### 4. Evaluation guidance to downstream user

Information on scaling is not available for this scenario.



# KEIM SILAN-100

## ES3 Use of coatings and plasters; consumer

### 1. Processes and activities covered by this description

#### Relevant use descriptors for this scenario:

**SU 21:** 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

##### Amounts used:

For this scenario, it is not relevant to specify quantitative data. Professional users and consumers generally have no control over the environmental conditions of their use.

#### 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

Process temperature..... : 25 °C

##### 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 cm<sup>2</sup>).

Inhalation rate ..... : 26 m<sup>3</sup>/day

Respiratory rate for light exercise.

### 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



# KEIM SILAN-100

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	0,12	ConsExpo 4.1
inhalative, short-term	Paint Products Fact Sheet (Brush/roller painting, solvent rich paint) , Langmuir evaporation model	0,097 mg/m <sup>3</sup>	0,0014	ConsExpo 4.1
dermal, long-term	Paint Products Fact Sheet (Brush/roller painting, solvent rich paint) , Langmuir evaporation model	0,00607 mg/kg/day	0,00064	ConsExpo 4.1
inhalative, long-term	Paint Products Fact Sheet (Brush/roller painting, solvent rich paint) , Langmuir evaporation model	0,000265 mg/m <sup>3</sup>	0,000024	ConsExpo 4.1

#### 4. Evaluation guidance to downstream user

Information on scaling is not available for this scenario.



# KEIM SILAN-100

## 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:

**SU 3:** 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)

**SU 10:** 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:** Other construction materials

#### 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..... : 70 t/a

Amount per site..... : 1,4 t/d

##### Duration and frequency of use:

Environment..... : 50 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 ..... : 0,25 % (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



# KEIM SILAN-100

**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

Process temperature..... : 25 °C

**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):**

Take appropriate measures to avoid static discharges. These include careful connection to electric power-points, grounding of machinery and equipment, and/or transport under protective gas. Equipment and containers must be inerted by purging with dry nitrogen. Use explosion-protected equipment/appliances and spark-free tools. Vapours/aerosols should be exhausted directly at place of formation. Adequate facilities for isolation of spilled liquids by collection or drainage have to be provided.

Local exhaust ventilation required. (Effectiveness: 90 %)

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 90 %)

Wear suitable coveralls to prevent exposure to the skin.

Wear eye/face protection.

**Additional good practice advice beyond the REACH CSA:**

For high vapor concentrations, use respiratory protective equipment.

**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

Process temperature..... : 25 °C

**Amounts used:**

Not of relevance.

**Duration and frequency of use:**

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

**Other given operational conditions affecting worker exposure:**

Room volume..... : > 100 m<sup>3</sup>

**Risk management measures related to human health (worker):**

Take appropriate measures to avoid static discharges. These include careful connection to electric power-points, grounding of machinery and equipment, and/or transport under protective gas. Equipment and containers must be inerted by purging with dry nitrogen. Use explosion-protected equipment/appliances and spark-free tools. Vapours/aerosols should be exhausted directly at place of formation. Adequate facilities for isolation of spilled liquids by collection or drainage have to be provided.

Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan.



# KEIM SILAN-100

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 90 %)

Wear suitable coveralls to prevent exposure to the skin.

Wear eye/face protection.

### Additional good practice advice beyond the REACH CSA:

For high vapor concentrations, use respiratory protective equipment.

### 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	-	0,0098 mg/l	0,015	EUSES 2.1.2
marine water	-	0,00098 mg/l	0,015	EUSES 2.1.2
Sediment (freshwater)	-	1,2 mg/kg dry mass	0,27	EUSES 2.1.2
Sediment (marine water)	-	0,12 mg/kg dry mass	0,27	EUSES 2.1.2
Soil	-	0,052 mg/kg dry mass	0,11	EUSES 2.1.2
sewage treatment plant	-	0,1 mg/l	0,10	EUSES 2.1.2
dermal, long-term	PROC 5.	0,0069 mg/kg/day	0,00051	ECETOC TRA v3
inhalative, long-term	PROC 5.	1,1 mg/m <sup>3</sup>	0,024	ECETOC TRA v3
dermal, long-term	PROC 8a.	1,37 mg/kg/day	0,10	ECETOC TRA v3
by inhalation	PROC 8a. 75th percentile , Handling score 3	2,23 mg/m <sup>3</sup>	0,050	Stoffenmanager 4.0

### 4. Evaluation guidance to downstream user

If the conditions of downstream use deviate from the measures or parameters described in the exposure scenario, the downstream use can still be considered to be within the conditions of the exposure scenario when the following criteria are met: The resulting risk characterisation ratios (RCR) for the deviating conditions, using the method described in the scenario or a compatible tool ("scaling tool"), have to be equal to or lower than the values given in the exposure scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting the process, and may vary depending on the method used for exposure assessment. Intrinsic substance properties like vapor pressure or diffusion rates and those parameters specific to the process, e.g. the exposed skin area, may not be scaled.



# KEIM SILAN-100

## 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.

#### Relevant use descriptors for this scenario:

**SU 3:** 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)

**SU 10:** 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:** Other construction materials

#### 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..... : 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 m<sup>3</sup>/day

Dilution factor (river)..... : 10

Dilution factor (coastal areas) ..... : 100

#### Other given operational conditions affecting environmental exposure:

Emission or release factor ..... : 1,7 % (Air)

Emission or release factor ..... : 0 % (Water)

#### Conditions and measures related to sewage treatment plant:

STP type ..... : default-sized municipal WWTP

STP effluent..... : 2.000 m<sup>3</sup>/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.





# KEIM SILAN-100

## 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

Process temperature..... : 25 °C

### 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):

Take appropriate measures to avoid static discharges. These include careful connection to electric power-points, grounding of machinery and equipment, and/or transport under protective gas. Equipment and containers must be inerted by purging with dry nitrogen. Use explosion-protected equipment/appliances and spark-free tools. Vapours/aerosols should be exhausted directly at place of formation. Adequate facilities for isolation of spilled liquids by collection or drainage have to be provided.

Local exhaust ventilation required. (Effectiveness: 90 %)

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 90 %)

Wear suitable coveralls to prevent exposure to the skin.

Wear eye/face protection.

### Additional good practice advice beyond the REACH CSA:

For high vapor concentrations, use respiratory protective equipment.

## 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

Process temperature..... : 25 °C

### Amounts used:

Not of relevance.

### Duration and frequency of use:

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

### Other given operational conditions affecting worker exposure:

Room volume..... : > 100 m<sup>3</sup>

### Risk management measures related to human health (worker):

Take appropriate measures to avoid static discharges. These include careful connection to electric power-points, grounding of machinery and equipment, and/or transport under protective gas. Equipment and containers must be inerted by purging with dry nitrogen. Use explosion-protected equipment/appliances and spark-free tools. Vapours/aerosols should be exhausted directly at place of formation. Adequate facilities for isolation of spilled liquids by collection or drainage have to be provided.



# KEIM SILAN-100

Local exhaust ventilation required. (Effectiveness: 95 %)

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 90 %)

Wear suitable coveralls to prevent exposure to the skin.

Wear eye/face protection.

**Additional good practice advice beyond the REACH CSA:**

For high vapor concentrations, use respiratory protective equipment.

**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

Process temperature..... : 25 °C

**Amounts used:**

Not of relevance.

**Duration and frequency of use:**

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

**Other given operational conditions affecting worker exposure:**

Room volume..... : > 100 m<sup>3</sup>

**Risk management measures related to human health (worker):**

Take appropriate measures to avoid static discharges. These include careful connection to electric power-points, grounding of machinery and equipment, and/or transport under protective gas. Equipment and containers must be inerted by purging with dry nitrogen. Use explosion-protected equipment/appliances and spark-free tools. Vapours/aerosols should be exhausted directly at place of formation. Adequate facilities for isolation of spilled liquids by collection or drainage have to be provided.

Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 90 %)

Wear suitable coveralls to prevent exposure to the skin.

Wear eye/face protection.

**Additional good practice advice beyond the REACH CSA:**

For high vapor concentrations, use respiratory protective equipment.

**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	-	0,000002 mg/l	0,000003	EUSES 2.1.2
marine water	-	< 0,000001 mg/l	0,000002	EUSES 2.1.2



# KEIM SILAN-100

Sediment (freshwater)	-	0,0041 mg/kg dry mass	0,00096	EUSES 2.1.2
Sediment (marine water)	-	0,00041 mg/kg dry mass	0,00096	EUSES 2.1.2
Soil	-	0,012 mg/kg dry mass	0,024	EUSES 2.1.2
sewage treatment plant	-	0 mg/l	0	EUSES 2.1.2
dermal, long-term	PROC 5.	0,0069 mg/kg/day	0,00051	ECETOC TRA v3
inhalative, long-term	PROC 5.	1,1 mg/m <sup>3</sup>	0,024	ECETOC TRA v3
dermal, long-term	PROC 7.	4,3 mg/kg/day	0,32	ECETOC TRA v3
inhalative, long-term	PROC 7. 75th percentile , Handling score 3	4,91 mg/m <sup>3</sup>	0,11	Stoffenmanager 4.0
dermal, long-term	PROC 8a.	1,37 mg/kg/day	0,10	ECETOC TRA v3
by inhalation	PROC 8a. 75th percentile , Handling score 3	2,23 mg/m <sup>3</sup>	0,050	Stoffenmanager 4.0

#### 4. Evaluation guidance to downstream user

If the conditions of downstream use deviate from the measures or parameters described in the exposure scenario, the downstream use can still be considered to be within the conditions of the exposure scenario when the following criteria are met: The resulting risk characterisation ratios (RCR) for the deviating conditions, using the method described in the scenario or a compatible tool ("scaling tool"), have to be equal to or lower than the values given in the exposure scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting the process, and may vary depending on the method used for exposure assessment. Intrinsic substance properties like vapor pressure or diffusion rates and those parameters specific to the process, e.g. the exposed skin area, may not be scaled.



# KEIM SILAN-100

## ES6 In mass hydrophobation; professional

### 1. Processes and activities covered by this description

#### Relevant use descriptors for this scenario:

**SU 22:** 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

**SU19:** Building and construction work

**PC15:** Non-metal-surface treatment products; **PC0:** Other (use UCN codes); **UCN K35900:** Other construction materials

#### 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

##### Amounts used:

For this scenario, it is not relevant to specify quantitative data. Professional users and consumers generally have no control over the environmental conditions of their use.

#### 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

Process temperature..... : 25 °C

##### 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, long-term	PROC 19.	1,42 mg/kg/day	0,11	ECETOC TRA v3
inhalative, long-term	PROC 19.	28,3 mg/m <sup>3</sup>	0,63	ECETOC TRA v3

### 4. Evaluation guidance to downstream user

Information on scaling is not available for this scenario.



# KEIM SILAN-100

## ES7 In mass hydrophobation; consumer

### 1. Processes and activities covered by this description

#### Relevant use descriptors for this scenario:

**SU 21:** 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:** Other construction materials

#### 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

##### Amounts used:

For this scenario, it is not relevant to specify quantitative data. Professional users and consumers generally have no control over the environmental conditions of their use.

#### 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

Process temperature..... : 25 °C

##### Amounts used:

per application..... : 3,75 kg (The given value refers to the amount of the mixture, not the substance.)

##### Duration and frequency of use:

Exposure time ..... : 45 min

Duration of use..... : 30 min

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

### 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 19. Paint Products Fact Sheet (Brush and roller painting, two-component paints, mixing and loading) , Langmuir evaporation model	0,077 mg/kg/day	0,0041	ConsExpo 4.1



# KEIM SILAN-100

inhalative, short-term	PROC 19. Paint Products Fact Sheet (Brush and roller painting, two-component paints, mixing and loading) , Langmuir evaporation model	0,0099 mg/m <sup>3</sup>	0,00015	ConsExpo 4.1
dermal, long-term	PROC 19. Paint Products Fact Sheet (Brush and roller painting, two-component paints, mixing and loading) , Langmuir evaporation model	0,00021 mg/kg/day	0,000022	ConsExpo 4.1
inhalative, long-term	PROC 19. Paint Products Fact Sheet (Brush and roller painting, two-component paints, mixing and loading) , Langmuir evaporation model	0,000027 mg/m <sup>3</sup>	0,000002	ConsExpo 4.1

#### 4. Evaluation guidance to downstream user

Information on scaling is not available for this scenario.



# KEIM SILAN-100

## ES8 Use of masonry treatment products; industrial

### 1. Processes and activities covered by this description

#### Relevant use descriptors for this scenario:

**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites

**ERC5:** Industrial use resulting in inclusion into or onto a matrix; **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:** Other construction materials

#### 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; ERC8f**

#### Concentration of substance in preparation/mixture or article:

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

#### Amounts used:

Amount per site..... : 42 t/a

Amount per site..... : 0,42 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 m<sup>3</sup>/day

Dilution factor (river)..... : 10

Dilution factor (coastal areas) ..... : 100

#### Other given operational conditions affecting environmental exposure:

Emission or release factor ..... : 1,7 % (Air)

Emission or release factor ..... : 0 % (Water)

#### Conditions and measures related to sewage treatment plant:

STP type ..... : default-sized municipal WWTP

STP effluent..... : 2.000 m<sup>3</sup>/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



# KEIM SILAN-100

Vapour pressure ..... : 0,22 Pa  
 Process temperature..... : 25 °C

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:**

Room volume..... : > 100 m<sup>3</sup>

**Risk management measures related to human health (worker):**

Take appropriate measures to avoid static discharges. These include careful connection to electric power-points, grounding of machinery and equipment, and/or transport under protective gas. Equipment and containers must be inerted by purging with dry nitrogen. Use explosion-protected equipment/appliances and spark-free tools. Vapours/aerosols should be exhausted directly at place of formation. Adequate facilities for isolation of spilled liquids by collection or drainage have to be provided.

Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan.

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 90 %)

Wear suitable coveralls to prevent exposure to the skin.

Wear eye/face protection.

**Additional good practice advice beyond the REACH CSA:**

For high vapor concentrations, use respiratory protective equipment.

**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	-	0,000002 mg/l	0,000003	EUSES 2.1.2
marine water	-	< 0,000001 mg/l	0,000002	EUSES 2.1.2
Sediment (freshwater)	-	0,0041 mg/kg dry mass	0,00096	EUSES 2.1.2
Sediment (marine water)	-	0,00041 mg/kg dry mass	0,00096	EUSES 2.1.2
Soil	-	0,023 mg/kg dry mass	0,047	EUSES 2.1.2
sewage treatment plant	-	0 mg/l	0	EUSES 2.1.2
dermal, long-term	PROC 7.	4,3 mg/kg/day	0,32	ECETOC TRA v3
inhalative, long-term	PROC 7. 75th percentile , Handling score 10	4,91 mg/m <sup>3</sup>	0,11	Stoffenmanager 4.0
dermal, long-term	PROC 8b.	0,69 mg/kg/day	0,051	ECETOC TRA v3
inhalative, long-term	PROC 8b. 75th percentile , Handling score 3	2,23 mg/m <sup>3</sup>	0,050	Stoffenmanager 4.0
dermal, long-term	PROC 10.	2,7 mg/kg/day	0,20	ECETOC TRA v3
inhalative, long-term	PROC 10. 75th percentile , Handling score 3	2,23 mg/m <sup>3</sup>	0,050	Stoffenmanager 4.0
dermal, long-term	PROC 13.	1,4 mg/kg/day	0,10	ECETOC TRA v3





# KEIM SILAN-100

inhalative, long-term	PROC 13. 75th percentile , Handling score 3	2,23 mg/m <sup>3</sup>	0,050	Stoffenmanager 4.0
dermal, long-term	PROC 19. 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.	5,66 mg/kg/day	0,42	ECETOC TRA v3
inhalative, long-term	PROC 19. 75th percentile , Handling score 3	2,23 mg/m <sup>3</sup>	0,050	Stoffenmanager 4.0

#### 4. Evaluation guidance to downstream user

If the conditions of downstream use deviate from the measures or parameters described in the exposure scenario, the downstream use can still be considered to be within the conditions of the exposure scenario when the following criteria are met: The resulting risk characterisation ratios (RCR) for the deviating conditions, using the method described in the scenario or a compatible tool ("scaling tool"), have to be equal to or lower than the values given in the exposure scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting the process, and may vary depending on the method used for exposure assessment. Intrinsic substance properties like vapor pressure or diffusion rates and those parameters specific to the process, e.g. the exposed skin area, may not be scaled.



# KEIM SILAN-100

## 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:

**SU 22:** 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:** Other construction materials

#### 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

##### Amounts used:

For this scenario, it is not relevant to specify quantitative data. Professional users and consumers generally have no control over the environmental conditions of their use.

#### 2.2 Contributing scenario controlling worker 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

Process temperature..... : 25 °C

solid - powder

##### 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. (Effectiveness: 80 %)

Wear suitable coveralls to prevent exposure to the skin.

#### 2.3 Contributing scenario controlling worker exposure:

##### PROC11 / Low-pressure spraying

##### Concentration of substance in preparation/mixture or article:

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

##### Physical state during application:

liquid



# KEIM SILAN-100

Vapour pressure ..... : 0,22 Pa  
Process temperature..... : 25 °C

**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. (Effectiveness: 80 %)  
Wear suitable coveralls to prevent exposure to the skin.

**2.4 Contributing scenario controlling worker exposure:  
PROC11 / High-pressure spraying**

**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  
Process temperature..... : 25 °C

**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 chemically resistant gloves (tested to EN374) in combination with specific activity training. (Effectiveness: 95 %)  
Wear suitable coveralls to prevent exposure to the skin.  
Full mask with filter or gas cartridge (Effectiveness: 95 %)

**2.5 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  
Process temperature..... : 25 °C

solid - powder

**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. (Effectiveness: 80 %)  
Wear suitable coveralls to prevent exposure to the skin.



# KEIM SILAN-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, long-term	PROC 10.	5,4 mg/kg/day	0,40	ECETOC TRA v3
inhalative, long-term	PROC 10. Handling score 3 , 75th percentile	13,5 mg/m <sup>3</sup>	0,30	Stoffenmanager 4.0
dermal, long-term	PROC 11. Low-pressure spraying	2,3 mg/kg/day	0,17	-
The given values are based on workplace measurements.				
inhalative, long-term	PROC 11. Handling score 3 , 75th percentile , Low-pressure spraying	13,5 mg/m <sup>3</sup>	0,30	Stoffenmanager 4.0
dermal, long-term	PROC 11. High-pressure spraying	5,4 mg/kg/day	0,40	ECETOC TRA v3
inhalative, long-term	PROC 11. Handling score 10 , 75th percentile , High-pressure spraying	10,3 mg/m <sup>3</sup>	0,23	Stoffenmanager 4.0

### 4. Evaluation guidance to downstream user

Information on scaling is not available for this scenario.



# KEIM SILAN-100

## 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:

**SU 21:** 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:** Other construction materials

#### 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

##### Amounts used:

For this scenario, it is not relevant to specify quantitative data. Professional users and consumers generally have no control over the environmental conditions of their use.

#### 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

Process temperature..... : 25 °C

##### 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

Exposure time..... : 132 min

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

##### Human factors not influenced by risk management:

Release area..... : 10 m<sup>2</sup>

##### Other given operational conditions affecting consumer exposure:

Room volume..... : 20 m<sup>3</sup>

#### 2.3 Contributing scenario controlling consumer exposure:

##### PROC11

##### Concentration of substance in preparation/mixture or article:

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



# KEIM SILAN-100

## Physical state during application:

liquid

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

Process temperature..... : 25 °C

## Amounts used:

per application..... : no data available

## Duration and frequency of use:

Duration of use..... : 8 h

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

## 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

Process temperature..... : 25 °C

## Amounts used:

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

## Duration and frequency of use:

Duration of use..... : 170 min

Exposure time ..... : 240 min

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

## Human factors not influenced by risk management:

Release area..... : 0,01 m<sup>2</sup>

## Other given operational conditions affecting consumer exposure:

Room volume..... : 20 m<sup>3</sup>

## 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

Process temperature..... : 25 °C

solid - powder

## Amounts used:

per application..... : 3,75 kg (The given value refers to the amount of the mixture, not the substance.)

## Duration and frequency of use:



# KEIM SILAN-100

Duration of use..... : 5 min  
 Exposure time..... : 10 min  
 Frequency of use ..... : once per year

**Human factors not influenced by risk management:**

Release area..... : 1 m<sup>2</sup>

**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)	0,62 mg/kg	0,033	ConsExpo 4.1
The exposure value has been corrected with respect to subchronic exposure.				
inhalative, short-term	PROC 10. Paint Products Fact Sheet (Brush/roller painting, solvent rich paint)	2,25 mg/m <sup>3</sup>	0,033	ConsExpo 4.1
dermal, long-term	PROC 19. Paint Products Fact Sheet (Brush/roller painting, solvent rich paint)	0,15 mg/kg/day	0,016	ConsExpo 4.1
inhalative, long-term	PROC 19. Paint Products Fact Sheet (Brush/roller painting, solvent rich paint)	0,0062 mg/m <sup>3</sup>	0,00055	ConsExpo 4.1
dermal, short-term	PROC 11. Low-pressure spraying	0,026 mg/kg	0,0013	-
The given values are based on workplace measurements. The exposure value has been corrected with respect to subchronic exposure.				
inhalative, short-term	PROC 11. Low-pressure spraying	4,1 mg/m <sup>3</sup>	0,060	-
The given values are based on workplace measurements.				
dermal, long-term	PROC 11. Low-pressure spraying	0,0063 mg/kg/day	0,00066	-
The given values are based on workplace measurements.				
inhalative, long-term	PROC 11. Low-pressure spraying	0,011 mg/m <sup>3</sup>	0,00097	-
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)	0,64 mg/kg	0,0094	ConsExpo 4.1
The exposure value has been corrected with respect to subchronic exposure.				
inhalative, short-term	PROC 13. Do-It-Yourself Products Fact Sheet (Filler and putty; Filler/putty from tubes)	3,77 mg/m <sup>3</sup>	0,056	ConsExpo 4.1



# KEIM SILAN-100

dermal, long-term	PROC 13. Do-It-Yourself Products Fact Sheet (Filler and putty; Filler/putty from tubes)	0,16 mg/kg/day	0,017	ConsExpo 4.1
inhalative, long-term	PROC 13. Do-It-Yourself Products Fact Sheet (Filler and putty; Filler/putty from tubes)	0,010 mg/m <sup>3</sup>	0,088	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	0,041	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/m <sup>3</sup>	0,00018	ConsExpo 4.1
dermal, long-term	PROC 19. Paint Products Fact Sheet (Brush and roller painting, two-component paints, mixing and loading)	0,0021 mg/kg/day	0,00022	ConsExpo 4.1
inhalative, long-term	PROC 19. Paint Products Fact Sheet (Brush and roller painting, two-component paints, mixing and loading)	0,000033 mg/m <sup>3</sup>	0,000003	ConsExpo 4.1

#### 4. Evaluation guidance to downstream user

Information on scaling is not available for this scenario.





# KEIM SILAN-100

<b>ES11</b>	<b>Use as laboratory reagent; industrial</b>
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1. **Processes and activities covered by this description**

**Relevant use descriptors for this scenario:**

**SU 3:** 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**

**Amounts used:**

Assessment of environmental exposure is not appropriate. Rationale: The amounts used are of such small scale, that releases 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

Process temperature..... : 25 °C

**Amounts used:**

Not of relevance.

**Duration and frequency of use:**

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

**Risk management measures related to human health (worker):**

Take appropriate measures to avoid static discharges. These include careful connection to electric power-points, grounding of machinery and equipment, and/or transport under protective gas. Equipment and containers must be inerted by purging with dry nitrogen. Use explosion-protected equipment/appliances and spark-free tools. Vapours/aerosols should be exhausted directly at place of formation. Adequate facilities for isolation of spilled liquids by collection or drainage have to be provided.

Local exhaust ventilation required. (Effectiveness: 90 %)

Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. (Effectiveness: 90 %)

Wear suitable coveralls to prevent exposure to the skin.

Wear eye/face protection.

**Additional good practice advice beyond the REACH CSA:**

For high vapor concentrations, use respiratory protective equipment.



# KEIM SILAN-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, long-term	PROC 15.	0,034 mg/kg/day	0,0025	ECETOC TRA v3
inhalative, long-term	PROC 15.	0,57 mg/m <sup>3</sup>	0,013	ECETOC TRA v3

### 4. Evaluation guidance to downstream user

If the conditions of downstream use deviate from the measures or parameters described in the exposure scenario, the downstream use can still be considered to be within the conditions of the exposure scenario when the following criteria are met: The resulting risk characterisation ratios (RCR) for the deviating conditions, using the method described in the scenario or a compatible tool ("scaling tool"), have to be equal to or lower than the values given in the exposure scenario. Scalable parameters are restricted to those that a downstream user can actively change by adapting the process, and may vary depending on the method used for exposure assessment. Intrinsic substance properties like vapor pressure or diffusion rates and those parameters specific to the process, e.g. the exposed skin area, may not be scaled.

- End of annex -