



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

Printing date 06.12.2022

Version number 14.0 (replaces version 13.0)

Revision: 06.12.2022

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 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:

KEIMFARBEN GMBH

Keimstraße 16 / 86420 Diedorf

Tel. +49 (0)821 4802-0

Fax +49 (0)821 4802-210

www.keim.com / info@keimfarben.de

· Further information obtainable from:

Product safety department

Telefon: 49(0)821/4802-138

E-Mail: sdb.info@keimfarben.de

· 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 06.12.2022

Version number 14.0 (replaces version 13.0)

Revision: 06.12.2022

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 CO₂, sand, extinguishing powder to extinguish.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P501 Dispose of contents/container in accordance with regional/national 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 Triethoxy(2,4,4-trimethylpentyl)silane

· **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.

DEN

(Contd. on page 3)



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

Printing date 06.12.2022

Version number 14.0 (replaces version 13.0)

Revision: 06.12.2022

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, CO₂, 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_x)
silicon dioxid (SiO₂)
alcohols
- **5.3 Advice for firefighters**
- **Special 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 and 8).
Wear protective equipment. Keep unprotected people 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.

DEN

(Contd. on page 4)



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

Printing date 06.12.2022

Version number 14.0 (replaces version 13.0)

Revision: 06.12.2022

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**

· **GISCode -**

· **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 Triethoxy(2,4,4-trimethylpentyl)silane

Oral	Long-term - systemic effects	9.5 mg/kg bw/day (consumer)
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(Contd. on page 5)



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 06.12.2022

Version number 14.0 (replaces version 13.0)

Revision: 06.12.2022

Trade name: KEIM SILAN-100

(Contd. of page 4)

Dermal	Acute - systemic effects	19 mg/kg/day (consumer)
	Long-term - systemic effects	9.5 mg/kg bw/day (consumer) 13.4 mg/kg bw/day (worker)
Inhalative	Acute - systemic effects	19 mg/kg/day (consumer) 13.4 mg/kg/day (worker)
	Acute - systemic effects	67.8 mg/m ³ (consumer) 45 mg/m ³ (worker)
	Long-term - systemic effects	11.3 mg/m ³ (consumer) 45 mg/m ³ (worker)
	Long-term - systemic effects	11.3 mg/m ³ (consumer) 45 mg/m ³ (worker)

· PNECs**35435-21-3 Triethoxy(2,4,4-trimethylpentyl)silane**

Aquatic compartment - freshwater	0.64 mg/l (Freshwater)
Aquatic compartment - marine water	0.064 mg/l (Seawater)
Aquatic compartment - water, intermittent releases	6.4 mg/l (not specified)
Aquatic compartment - sediment in freshwater	4.3 mg/kg sed dw (Freshwater sediment)
Aquatic compartment - sediment in marine water	0.43 mg/kg sed dw (Marine sediment)
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****· Individual protection measures, such as 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: gas mask filter ABEK.**· Hand protection** Protective gloves**· Material of gloves**

suitable material e.g.:

Butyl rubber, BR

Recommended thickness of the material: ≥ 0.3 mm

Nitrile rubber, NBR

Recommended thickness of the material: ≥ 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 materialValue for the permeation: level ≥ 6 (480 min)

The determined penetration times according to EN 16523-1:2015 are not performed under practical conditions. Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.

(Contd. on page 6)

DEN



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 06.12.2022

Version number 14.0 (replaces version 13.0)

Revision: 06.12.2022

Trade name: KEIM SILAN-100

(Contd. of page 5)

The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye/face protection** Tightly sealed goggles
 - **Body protection:** Protective work clothing
 - **Environmental exposure controls**
See Section 12 and 6.2
- No further relevant information available.

SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

- **Physical state** Fluid
- **Colour:** Colourless
- **Odour:** slightly
- **Melting point/freezing point:** <-100 °C (1013hPa / OECD 102)
- **Boiling point or initial boiling point and boiling range** 237 °C (1013 hPa / OECD 103)
- **Flammability** Not applicable
- **Lower and upper explosion limit**
- **Lower:** 0.4 Vol % (DIN EN 1839)
- **Upper:** Not determined
- **Flash point:** 42 °C (ISO 3679)
- **Ignition temperature:** 251 °C (EN 14522)
- **Decomposition temperature:** >150 °C
- **pH** Not determined
- **Viscosity:**
- **Kinematic viscosity at 20 °C** 1.98* mm²/s (DIN 51562)
- **Dynamic at 25 °C:** 1.9* mPas (DIN 51562)
- **Solubility**
- **water at 20 °C:** <0.00025 g/l
Slightly soluble.
- **Partition coefficient n-octanol/water (log value)** 6.1 log POW
Not determined.
- **Vapour pressure at 25 °C:** 0.089 hPa (EG-RL.A.4)
- **Density and/or relative density**
- **Density at 20 °C:** 0.9-1.0* g/cm³
- **Vapour density** Not applicable

· 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.

(Contd. on page 7)

DEN



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 06.12.2022

Version number 14.0 (replaces version 13.0)

Revision: 06.12.2022

Trade name: KEIM SILAN-100

(Contd. of page 6)

· Appearance:	
· Form:	Fluid
· Important information on protection of health and environment, and on safety.	
· Auto-ignition temperature:	Not determined
· Explosive properties:	Explosion group: II B Product is not explosive. However, the formation of explosive air/vapour mixtures is possible.
· Change in condition	
· Evaporation rate	Not applicable
· Information with regard to physical hazard classes	
· Explosives	Void
· Flammable gases	Void
· Aerosols	Void
· Oxidising gases	Void
· Gases under pressure	Void
· Flammable liquids	
Flammable liquid and vapour.	
· Flammable solids	Void
· Self-reactive substances and mixtures	Void
· Pyrophoric liquids	Void
· Pyrophoric solids	Void
· Self-heating substances and mixtures	Void
· Substances and mixtures, which emit flammable gases in contact with water	Void
· Oxidising liquids	Void
· Oxidising solids	Void
· Organic peroxides	Void
· Corrosive to metals	Void
· Desensitised explosives	Void

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

(Contd. on page 8)

DEN



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 06.12.2022

Version number 14.0 (replaces version 13.0)

Revision: 06.12.2022

Trade name: KEIM SILAN-100

(Contd. of page 7)

10.5 Incompatible materials:

Water
Bases
Acids

Reacts with water, basic substances or acids. The reaction takes place with the formation of ethanol.

10.6 Hazardous decomposition products:

In the case of hydrolysis, ethanol. At temperatures from approx. 150 °C, a small amount of formaldehyde can be split off by oxidative degradation.

No hazardous decomposition products if stored and handled as prescribed.

SECTION 11: Toxicological information**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**

· **Acute toxicity** Based on available data, the classification criteria are not met.

LD/LC50 values relevant for classification:

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 /no mortal (rat) (OECD 403)

35435-21-3 Triethoxy(2,4,4-trimethylpentyl)silane

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 /no mortal (rat) (OECD 403) Aerosol

· Skin corrosion/irritation

not irritating on rabbit
OECD 404

· Serious eye damage/irritation

not irritating on rabbit eye
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

· **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.

· Other information (about experimental toxicology):

The product was not tested. The statements on toxicology have been derived from the properties of the individual components.

(Contd. on page 9)

DEN



Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 06.12.2022

Version number 14.0 (replaces version 13.0)

Revision: 06.12.2022

Trade name: KEIM SILAN-100

(Contd. of page 8)

· Subacute to chronic toxicity:**· Repeated dose toxicity****35435-21-3 Triethoxy(2,4,4-trimethylpentyl)silane**Oral NOAEL $\geq 1,000$ mg/kg (rat) (OECD 422)**· CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)** Not applicable**· 11.2 Information on other hazards****· Endocrine disrupting properties**

Substance is not listed.

SECTION 12: Ecological information**· 12.1 Toxicity****· Aquatic toxicity:****35435-21-3 Triethoxy(2,4,4-trimethylpentyl)silane**

NOEC 32 mg/l (daphnia) (21d)

EC 50/3h >100 mg/l (sewage sludge)

LC 50/96 h >100 mg/l (fish) (OECD 203)

· 12.2 Persistence and degradability

Reacts with water to form ethanol and silanol and/or siloxanol compounds.

The hydrolysis product (ethanol) is readily biodegradable.

Silanol and/or siloxanol compounds are not readily biodegradable.

· 12.3 Bioaccumulative potential No further relevant information available.**· 12.4 Mobility in soil** No further relevant information available.**· 12.5 Results of PBT and vPvB assessment****· PBT:** Not applicable**· vPvB:** Not applicable**· 12.6 Endocrine disrupting properties**

The product does not contain substances with endocrine disrupting properties.

· 12.7 Other adverse effects**· 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.

(Contd. on page 10)

DEN



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

Printing date 06.12.2022

Version number 14.0 (replaces version 13.0)

Revision: 06.12.2022

Trade name: KEIM SILAN-100

(Contd. of page 9)

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

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 or ID 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 Maritime transport in bulk according to IMO instruments**

Not applicable

· **Transport/Additional information:**

No dangerous good in sense of these transport regulations.
Substance does not sustain combustion!

· **UN "Model Regulation":**

Void



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

Printing date 06.12.2022

Version number 14.0 (replaces version 13.0)

Revision: 06.12.2022

Trade name: KEIM SILAN-100

(Contd. of page 10)

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

· LIST OF SUBSTANCES SUBJECT TO AUTHORISATION (ANNEX XIV)

Substance is not listed.

- **Regulation (EU) No 649/2012** Not applicable

· DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II

Substance is not listed.

- **REGULATION (EU) 2019/1148**

· Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))

Substance is not listed.

· Annex II - REPORTABLE EXPLOSIVES PRECURSORS

Substance is not listed.

- **Regulation (EC) No 273/2004 on drug precursors**

Substance is not listed.

· Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors

Substance is not listed.

- **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

- **Product-Code/Giscode:** ---

(Contd. on page 12)



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

Printing date 06.12.2022

Version number 14.0 (replaces version 13.0)

Revision: 06.12.2022

Trade name: KEIM SILAN-100

(Contd. of page 11)

- **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
- **Version number of previous version:** 13.0

- **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 relatif au transport international 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

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

AGW: Arbeitsplatzgrenzwert (Germany)

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 !** ____

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:
sdb.info@keimfarben.de

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.

	ES No.
SU 3 – ERC2, ERC5 – PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9 – SU 10, SU13 – PC9a, PC9b	1
	ES No.
SU 22 – ERC5, ERC8c, ERC8f – PROC10, PROC11, PROC19 – SU13, SU19 – PC9a, PC9b	2
	ES No.
SU 21 – ERC5, ERC8c, ERC8f – PROC10, PROC11, PROC19 – SU13, SU19 – PC9a, PC9b	3
	ES No.
SU 3 – ERC2, ERC5 – PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9 – SU 10, SU13 – PC0	4
	ES No.
SU 3 – ERC2, ERC5, ERC6a, ERC8f – PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC19 – SU 10, SU13, SU19 – PC15, PC0	5
	ES No.
SU 22 – ERC8f – PROC19 – SU13, SU19 – PC15, PC0	6
	ES No.
SU 21 – ERC8f – PROC19 – PC15, PC0	7
	ES No.
SU 3 – ERC5, ERC6a, ERC8f – PROC7, PROC8b, PROC10, PROC13, PROC19 – SU13, SU19 – PC0	8
	ES No.
SU 22 – ERC8c, ERC8f – PROC10, PROC11, PROC13, PROC19 – SU13, SU19 – PC0	9
	ES No.
SU 21 – ERC8c, ERC8f – PROC10, PROC11, PROC13, PROC19 – SU13, SU19 – PC0	10
	ES No.
SU 3 – 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:

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)

KEIM SILAN-100

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 m³/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 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

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):

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

Wear suitable coveralls to prevent exposure to the skin.

KEIM SILAN-100

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 : 60 min; per shift

Other given operational conditions affecting worker exposure:

Room volume..... : 100 m³

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/fittings 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**

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 : 60 min; per shift

Other given operational conditions affecting worker exposure:

Room volume..... : 100 m³

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/fittings 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 : 240 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.

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 ³	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 ³	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 ³	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 ³	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.

ES2	Use of coatings and plasters; professional
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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 : 240 min; 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 ³	0,036	Stoffenmanager 4.0
dermal, long-term	PROC 11.	4,3 mg/kg/day	0,32	ECETOC TRA v3
inhalative, long-term	PROC 11. 75th percentile , Handling score 10	3,56 mg/m ³	0,079	Stoffenmanager 4.0

4. **Evaluation guidance to downstream user**

Information on scaling is not available for this scenario.

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ES3	Use of coatings and plasters; consumer
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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 cm²).

Inhalation rate : 26 m³/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

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

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inhalative, short-term	Paint Products Fact Sheet (Brush/roller painting, solvent rich paint) , Langmuir evaporation model	0,097 mg/m ³	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 ³	0,000024	ConsExpo 4.1

4. Evaluation guidance to downstream user

Information on scaling is not available for this scenario.

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

Concentration of substance in preparation/mixture or article:

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

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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/fittings 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 : 240 min; per shift

Other given operational conditions affecting worker exposure:

Room volume..... : 100 m³

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/fittings 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	-	0,0098 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 ³	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 ³	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.

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 m³/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 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:

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<=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/fittings 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 min; per shift

Other given operational conditions affecting worker exposure:

Room volume..... : 100 m³

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/fittings 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: 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 : 240 min; per shift

Other given operational conditions affecting worker exposure:

Room volume..... : 100 m³

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/fittings 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	-	0,012 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 ³	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 ³	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 ³	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
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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 : 240 min; 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 ³	0,63	ECETOC TRA v3

4. Evaluation guidance to downstream user

Information on scaling is not available for this scenario.

ES7	In mass hydrophobation; consumer
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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

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 ³	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 ³	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
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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

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 m³/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 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

Process temperature..... : 25 °C

solid - powder

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time : 240 min; per shift

Other given operational conditions affecting worker exposure:

Room volume..... : 100 m³

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/fittings 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 ³	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 ³	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 ³	0,050	Stoffenmanager 4.0
dermal, long-term	PROC 13.	1,4 mg/kg/day	0,1	ECETOC TRA v3
inhalative, long-term	PROC 13. 75th percentile , Handling score 3	2,23 mg/m ³	0,050	Stoffenmanager 4.0
dermal, long-term	PROC 19.	5,66 mg/kg/day	0,42	ECETOC TRA v3
	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.			

inhalative, long-term	PROC 19. 75th percentile , Handling score 3	2,23 mg/m ³	0,050	Stoffenmanager 4.0
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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.

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 : 240 min; 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

Vapour pressure : 0,22 Pa

Process temperature..... : 25 °C

Amounts used:

Not of relevance.

Duration and frequency of use:

Exposure time : 240 min; 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 : 240 min; 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 : 240 min; 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.

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 ³	0,30	Stoffenmanager 4.0
dermal, long-term	PROC 11. Low-pressure spraying	2,3 mg/kg/day	0,17	not specified
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 ³	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 ³	0,23	Stoffenmanager 4.0

4. Evaluation guidance to downstream user

Information on scaling is not available for this scenario.

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ES10	Use of masonry treatment products; Consumer
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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 m²

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

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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 m²

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

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:

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 m²

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 ³	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 ³	0,00055	ConsExpo 4.1
dermal, short-term	PROC 11. Low-pressure spraying	0,026 mg/kg	0,0013	not specified
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 ³	0,060	not specified
The given values are based on workplace measurements.				
dermal, long-term	PROC 11. Low-pressure spraying	0,0063 mg/kg/day	0,00066	not specified
The given values are based on workplace measurements.				
inhalative, long-term	PROC 11. Low-pressure spraying	0,011 mg/m ³	0,00097	not specified
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 ³	0,056	ConsExpo 4.1
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)	0,01 mg/m ³	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

KEIM SILAN-100



inhalative, short-term	PROC 19. Paint Products Fact Sheet (Brush and roller painting, two-component paints, mixing and loading)	0,0121 mg/m ³	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 ³	0,000003	ConsExpo 4.1

4. Evaluation guidance to downstream user

Information on scaling is not available for this scenario.

ES11 Use as laboratory reagent; 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

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/fittings 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.

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 ³	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 -