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

Printing date 24.06.2019 Version number 3 Revision: 24.06.2019

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

· **1.1 Product identifier**
· Trade name: **Stonestrengthener K**

· Article number: 11304, 11320
· **1.2 Relevant identified uses of the substance or mixture and uses advised against** No further relevant information available.
· Application of the substance / the mixture Binder

· **1.3 Details of the supplier of the safety data sheet**
· Manufacturer/Supplier: AKEMI chemisch technische Spezialfabrik GmbH Tel. +49(0)911-642960
Lechstrasse 28 Fax. +49(0)911-644456
D 90451 Nürnberg e-mail info@akemi.de

· Further information obtainable from: Laboratory
· **1.4 Emergency telephone number:** Product Safety Department AKEMI chemisch technische Spezialfabrik GmbH
Tel. +49(0)911-64296-59
Reachable during the following office hours:
Monday – Thursday from 07:30 a.m. to 16:30 p.m.
Friday from 07:30 a.m. to 13:30 p.m.
Tox Info Suisse
24-h-Notfallnummer: 145 (aus dem Ausland: +41 44 251 51 51)
Auskunft: +41 44 251 66 66
+44 (171) 635 91 91
National Poison Inform. Centre
Medical Toxicology Unit
Avalonley Road
London SE14 5ER

* **SECTION 2: Hazards identification**

· **2.1 Classification of the substance or mixture**
· Classification according to Regulation (EC) No 1272/2008


GHS02 flame

Flam. Liq. 3 H226 Flammable liquid and vapour.


GHS07

Acute Tox. 4 H332 Harmful if inhaled.
Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H335 May cause respiratory irritation.

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


GHS02 GHS07

· Signal word Warning

· Hazard-determining components of labelling: tetraethyl silicate

(Contd. on page 2)

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

Printing date 24.06.2019 Version number 3 Revision: 24.06.2019

Trade name: Stonestrengthener K

(Contd. of page 1)

· Hazard statements
H226 Flammable liquid and vapour.
H332 Harmful if inhaled.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

· Precautionary statements

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read label before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P304+P312	IF INHALED: Call a POISON CENTER/doctor if you feel unwell.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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**

· **3.2 Chemical characterisation: Mixtures**
· Description: Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

CAS: 78-10-4 EINECS: 201-083-8 Index number: 014-005-00-0 Reg.nr.: 01-2119496195-28	tetraethyl silicate Flam. Liq. 3, H226 Acute Tox. 4, H332; Eye Irrit. 2, H319; STOT SE 3, H335	25-50%

· Additional information: For the wording of the listed hazard phrases refer to section 16.

* **SECTION 4: First aid measures**

· **4.1 Description of first aid measures**
· General information: Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· After inhalation: Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.
In case of unconsciousness place patient stably in side position for transportation.
· After skin contact: Immediately wash with water and soap and rinse thoroughly.
· After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· After swallowing: Rinse out mouth and then drink plenty of water.
· **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.

(Contd. on page 3)

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

Printing date 24.06.2019 Version number 3 Revision: 24.06.2019

Trade name: Stonestrengthener K

(Contd. of page 2)

· **4.3 Indication of any immediate medical attention and special treatment needed** No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· Suitable extinguishing agents: CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· For safety reasons unsuitable extinguishing agents: Water with full jet
· **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
· **5.3 Advice for firefighters**
· Protective equipment: Wear self-contained respiratory protective device.
Mount respiratory protective device.
· Additional information 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** Wear protective equipment. Keep unprotected persons away.
· **6.2 Environmental precautions:** Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· **6.3 Methods and material for containment and cleaning up:** Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
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.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling** Keep receptacles tightly sealed.
Ensure good ventilation/exhaustion at the workplace.
· Information about fire - and explosion protection: Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **7.2 Conditions for safe storage, including any incompatibilities**
· Storage:
· Requirements to be met by storerooms and receptacles: No special requirements.
· Information about storage in one common storage facility: Not required.
· Further information about storage conditions: Protect from humidity and water.
Keep container tightly sealed.
· **7.3 Specific end use(s)** No further relevant information available.

(Contd. on page 4)

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

Printing date 24.06.2019 Version number 3 Revision: 24.06.2019

Trade name: Stonestrengthener K

(Contd. of page 3)

* **SECTION 8: Exposure controls/personal protection**

· Additional information about design of technical facilities: No further data; see item 7.

· **8.1 Control parameters**

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

78-10-4 tetraethyl silicate

WEL	Long-term value: 44 mg/m³, 5 ppm

· DNELs

78-10-4 tetraethyl silicate

Dermal	DNEL (Kurzzeit-akut)	12.1 mg/kg bw/day (ARB)
		8.4 mg/kg bw/day (BEV)
	DNEL (Langzeit-wiederholt)	12.1 mg/kg bw/day (ARB)
		8.4 mg/kg bw/day (BEV)
Inhalative	DNEL (Kurzzeit-akut)	85 mg/m³ Air (ARB)
		25 mg/m³ Air (BEV)
	DNEL (Langzeit-wiederholt)	85 mg/m³ Air (ARB)
		25 mg/m³ Air (BEV)

· PNECs

78-10-4 tetraethyl silicate

PNEC (wässrig)	4,000 mg/l (KA)
	0.0192 mg/l (MW)
	0.192 mg/l (SW)
	10 mg/l (WAS)
PNEC (fest)	0.05 mg/kg Trockengew (BO)
	0.018 mg/kg Trockengew (MWS)
	0.18 mg/kg Trockengew (SWS)

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

· **8.2 Exposure controls**

· Personal protective equipment:

· General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.

· Respiratory protection: Filter AX
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· Protection of hands: Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
Skin protection agent recommendation for preventive skin shelter without use of protective gloves:
STOKO EMULSION (http://www.stoko.com)
Skin protection agent recommendation for preventive skin shelter in application and combination of protective gloves:
STOKO EMULSION (http://www.stoko.com)
Skin protection recommendation for skin cleaning after product handling:
Kresto Classic (http://debstoko.com)

(Contd. on page 5)

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

Printing date 24.06.2019 Version number 3 Revision: 24.06.2019

Trade name: Stonestrengthener K

(Contd. of page 4)

Skin protection agent recommendation for skin aftercare:
STOKO VITAN (http://www.stoko.com)
The protection gloves to be used have to comply with the specifications of the directive 89/686/EC and the directive derived decree EN374, respectively, e.g. the above listed protection glove type. The mentioned permeation times´ data were generated and verified with material samples of the recommended protection glove type in the scope of laboratory anylyses of the company KCL GmbH in compliance with EN374.
This recommendation refers exclusively to the material safety data sheet referenced product delivered by Akemi and the indicated field of application. In case of product dilution or in case of mixture with different substances or chemicals, and in condition of EN374 deviation the producer of CE-approved protection gloves must be contacted for detailed information (e.g., KCL GmbH, Germany, 36124 Eichenzell, internet: http://www.kcl.de).

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· Material of gloves
Butyl rubber, BR
Nitrile rubber, NBR
Chloroprene rubber, CR
Fluorocarbon rubber (Viton)
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. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· Penetration time of glove material
Value for the permeation: Level ≤ 6, 480 min
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· For the permanent contact gloves made of the following materials are suitable:
Nitrile rubber, NBR
Camatril (KCL, Art_No. 730, 731, 732, 733)
Dermatril (Art_No. 740, 741, 742)
Chloroprene rubber, CR
Camapren (KCL, Art_No. 720, 722, 726)
Butyl rubber, BR
Butoject (KCL, Art_No. 897, 898)

· As protection from splashes gloves made of the following materials are suitable:
Nitrile rubber, NBR
Dermatril (KCL, Art_No. 740, 741, 742)
Camatril (KCL, 730, 731, 732, 733)

· Not suitable are gloves made of the following materials:
Leather gloves
Strong material gloves

· Eye protection:

Tightly sealed goggles

(Contd. on page 6)

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

Printing date 24.06.2019 Version number 3 Revision: 24.06.2019

Trade name: Stonestrengthener K

(Contd. of page 5)

· Body protection: Protective work clothing

* **SECTION 9: Physical and chemical properties**

· **9.1 Information on basic physical and chemical properties**	
· General Information	
· Appearance:	
Form:	Fluid
Colour:	Colourless
· Odour:	Characteristic
· pH-value:	Not applicable
· Change in condition	
Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	Undetermined.
· Flash point:	40 °C
· Ignition temperature:	230 °C
· Auto-ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· Explosion limits:	
Lower:	1.3 Vol %
Upper:	23 Vol %
· Vapour pressure at 20 °C:	1.7 hPa
· Density at 20 °C:	1 g/cm³
· Solubility in / Miscibility with water:	Not miscible or difficult to mix.
· Viscosity:	
Dynamic at 20 °C:	1.6 mPas
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	0.0 %
· **9.2 Other information**	No further relevant information available.

* **SECTION 10: Stability and reactivity**

· **10.1 Reactivity** No further relevant information available.
· **10.2 Chemical stability**
· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
· **10.3 Possibility of hazardous reactions** Reacts with water.
· **10.4 Conditions to avoid** No further relevant information available.
· **10.5 Incompatible materials:** No further relevant information available.
· **10.6 Hazardous decomposition products:** Ethanol
Possible in traces.

(Contd. on page 7)

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

Printing date 24.06.2019 Version number 3 Revision: 24.06.2019

Trade name: Stonestrengthener K

(Contd. of page 6)

* **SECTION 11: Toxicological information**

· **11.1 Information on toxicological effects**
· Acute toxicity Harmful if inhaled.

· LD/LC50 values relevant for classification:		
ATE (Acute Toxicity Estimates)		
Inhalative	LC50/4 h	20.2-33.9 mg/l (rat)

78-10-4 tetraethyl silicate		
Oral	LD50	>2,500 mg/kg (rat)
	NOAEL	≥100 mg/kg (rat)
Inhalative	LC50/4 h	10-16.8 mg/l (rat)

· Primary irritant effect:
· Skin corrosion/irritation Based on available data, the classification criteria are not met.
· Serious eye damage/irritation Causes serious eye irritation.
· Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
· CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)
· 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 May cause respiratory irritation.
· 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:	
78-10-4 tetraethyl silicate	
EC50	>100 mg/l (Klärschlamm: Atmungs-/Vermehrungshemmung)
EC50/48h	>75 mg/l (daphnia magna)
EC50/72h	>100 mg/l (Pseudokirchneriella subcapitata)
LC50/96h	>245 mg/l (Danio rerio.)

· **12.2 Persistence and degradability** No further relevant information available.
· **12.3 Bioaccumulative potential** No further relevant information available.
· **12.4 Mobility in soil** No further relevant information available.
· Ecotoxical effects:
· Remark: Harmful to fish
· Additional ecological information:
· General notes: Do not allow product to reach ground water, water course or sewage system.
Harmful to aquatic organisms
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
· **12.5 Results of PBT and vPvB assessment**
· PBT: Not applicable.
· vPvB: Not applicable.
· **12.6 Other adverse effects** No further relevant information available.

(Contd. on page 8)

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

Printing date 24.06.2019 Version number 3 Revision: 24.06.2019

Trade name: Stonestrengthener K

(Contd. of page 7)

* **SECTION 13: Disposal considerations**

· **13.1 Waste treatment methods**
· Recommendation: Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· European waste catalogue	
16 00 00	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 03 00	off-specification batches and unused products
16 03 06	organic wastes other than those mentioned in 16 03 05

· Uncleaned packaging:
· Recommendation: Empty contaminated packagings thoroughly. They may be recycled after thorough and proper cleaning.

* **SECTION 14: Transport information**

· **14.1 UN-Number**
· ADR, IMDG, IATA: UN1292

· **14.2 UN proper shipping name**
· ADR: 1292 TETRAETHYL SILICATE
· IMDG, IATA: TETRAETHYL SILICATE

· **14.3 Transport hazard class(es)**

· ADR

· Class: 3 (F1) Flammable liquids.
· Label: 3

· IMDG, IATA

· Class: 3 Flammable liquids.
· Label: 3

· **14.4 Packing group**
· ADR, IMDG, IATA: III

· **14.5 Environmental hazards:**
· Marine pollutant: No

· **14.6 Special precautions for user**: Warning: Flammable liquids.
· Danger code (Kemler): 30
· EMS Number: F-E,S-D
· Stowage Category: A

· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**: Not applicable.

(Contd. on page 9)

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

Printing date 24.06.2019 Version number 3 Revision: 24.06.2019

Trade name: Stonestrengthener K

(Contd. of page 8)

· Transport/Additional information:

· ADR
· Limited quantities (LQ) 5L
· Excepted quantities (EQ) Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml
· Transport category 3
· Tunnel restriction code D/E

· IMDG
· Limited quantities (LQ) 5L
· Excepted quantities (EQ) Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation": UN 1292 TETRAETHYL SILICATE, 3, III

*
SECTION 15: Regulatory information

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

· Directive 2012/18/EU
· Named dangerous substances - ANNEX I None of the ingredients is 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 (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

· National regulations:

· Waterhazard class: Water hazard class 2 (Self-assessment): hazardous for water.
· VOC EU 0.0 g/l
· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not 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.

· Relevant phrases H226 Flammable liquid and vapour.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
· Recommended restriction of use refer to Technical Data Sheet (TDS)

· Department issuing SDS: Laboratory
· Contact: Dieter Zimmermann
· 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

(Contd. on page 10)

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

Printing date 24.06.2019 Version number 3 Revision: 24.06.2019

Trade name: Stonestrengthener K

(Contd. of page 9)

GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

· * Data compared to the previous version altered.

Adaptation in accordance with REACH directive 1907/2006/EC