

SECTION 1: IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier:

Name of the mixture:	Thin bed mortar
Synonyms:	Mineral dry mortar, adhesive mortar
Trade name, UFI:	Silka FIX S202, Silka Secure Dünnbettmörtel, Silka Secure thin-bed mortar, Silka Secure lijmortel, Silka Secure thin-bed mørtel, Silka Secure tunnbäddsmortel, Silka Secure thin-bed mortel UFI: VPK2-UA3G-U407-G7SY Silka FIX S202 white, Silka Secure white Dünnbettmörtel, Silka Secure White thin-bed mortar, Silka Secure White lijmortel, Silka Secure White thin-bed mørtel, Silka Secure White tunnbäddsmortel, Silka Secure White thin-bed mortel, UFI: RSK2-AASW-440Q-5KD1 Dünnbettmörtel DB-KS XXL, UFI: 4JW2-1AG5-2404-KGTD Dünnbettmörtel DB-KS XXL Wi, UFI: 0FW2-HASR-R40N-W57A YTONG Dünnbettmörtel für Porenbeton / Dünnbettmörtel weiß für Porenbeton, Thin bed mortar for aerated concrete, Mortier-colle pour béton cellulaire autoclavé, Malta-collante per calcestruzzo cellulare autoclavato, Dunbedmortel voor cellenbeton, İnce Tabaka Harcı düz gazbeton, UFI: 4H13-AA7E-440W-06MC

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

Relevant identified uses: Building materials and construction industries; especially:
to build masonry using the thin-bed method for sand-lime bricks and Silka plan blocks, plan elements, Silka Secure also with butt-joint mortar;
for aerated concrete and YTONG plan blocks, plan elements, masonry blocks.

1.3 Details of the supplier of the Product Safety Data Sheet

Name:	Fels Vertriebs und Service GmbH & Co. KG
Address:	Geheimrat-Ebert-Straße 12, D-38640 Goslar
Tel. no:	+49(0) 5321 703 408
Fax no:	+49(0) 5321 703 425
E-mail address of the person responsible for the Product Safety Data Sheet:	reach@fels.de

1.4 Emergency telephone number

European emergency telephone number	112
Emergency information service:	+49(0) 551 19240 University Hospital Göttingen –GIZ Nord
Manufacturer's information number:	+49(0) 39454 58 441
Availability outside office hours:	No

SECTION 2: POTENTIAL HAZARDS

2.1 Classification of the mixture

2.1.1 Classification according to Regulation (EC) 1272/2008

Skin Irrit. 2; H315
Eye Dam. 1; H318
STOT SE 3; H335; exposure pathway inhalation

2.1.2 Additional information

See section 16 for full text of hazard and risk phrases.

2.2 Label elements

Labelling according to Regulation (EC) 1272/2008 (CLP)

Hazard pictograms:



Signal word: Danger

Hazard statements:

H315: Causes skin irritation.
H318: Causes serious eye damage.
H335: May cause respiratory irritation.

Precautionary statements:

P102: Keep out of reach of children.
P280: Wear protective gloves/protective clothing/eye protection/face protection
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352: IF ON SKIN: Wash with plenty of water.
P310: Immediately call a POISON CENTRE or doctor/physician.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P501: Dispose of contents/container in accordance with national regulations.

2.3 Other hazards

The mixture is chromate reduced in accordance with Annex XVII to Regulation (EC) 1907/2006, no. 47, therefore there is no risk of sensitization caused by chromate. In its ready for use form, following the addition of water, the soluble chromium(VI) content amounts to 0.0002% of the dry mass of the cement content at the most.

The precondition for the effectiveness of chromate reduction is the proper dry storage and observance of the maximum storage time.

The mixture does not meet the criteria for PBT or vPvB substances.

The mixture exhibits no endocrine disrupting properties and has not been added to the list of substances having endocrine disrupting properties in accordance with Article 59 of Regulation (EC) 1907/2006.

The mixture exhibits no endocrine disrupting or endocrine disruptive properties in accordance with the criteria of Delegated Regulation (EC) 2017/2100 or Regulation (EC) 2018/605.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not relevant

3.2 Mixtures

Description of the mixture:

Dry mortar, mixture of mineral binders and aggregates.

Constituents classified in accordance with Regulation (EC) 1272/2008:

CAS number	EG number	REACH registration number	Substance name	Weight % content (or range)	Classification according to Regulation (EC) 1272/2008 [CLP]
65997-15-1	266-043-4	-	Portland Cement Clinker	20...45 %	<i>Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335</i>

Substances of Very High Concern (SVHC), published in accordance with Article 59 of Regulation (EC) No. 1907/2006, are not contained at a concentration greater than 0.1 mass percent.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice

No known delayed effects. Consult a physician for all exposures except for minor instances.

Following inhalation

Move source of dust or move person to fresh air. Obtain medical attention immediately.

Following skin contact

Carefully and gently wipe the contaminated skin areas in order to remove all traces of product. Wash affected area immediately with plenty of water. Remove contaminated clothing. If necessary seek medical advice.

Following eye contact

Rinse eyes immediately with plenty of water and seek medical advice.

After ingestion

Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Obtain medical attention.

Self-protection for first-aiders

Avoid contact with the skin, eyes and clothing; wear appropriate personal protective equipment (see subsection 8.2.2); avoid inhaling dust; ensure sufficient ventilation or wear appropriate respiratory protection.

4.2 Most important symptoms and effects, both acute and delayed

The mixture is not acutely toxic via the oral, dermal, or inhalation route. The mixture is classified as irritating to skin. There is a risk of serious damage to the eyes. There is no concern regarding adverse systemic effects because the pH-effect represents the primary health hazard.

4.3 Indication of any immediate medical attention and special treatment needed

Follow the advice given in section 4.1.

SECTION 5: FIRE FIGHTING MEASURES

5.1 Extinguishing media

5.1.1 Suitable extinguishing media

The product is not combustible. Use a dry powder, foam or CO2 fire extinguisher to extinguish surrounding fires.
Use extinguishing measures appropriate to the local circumstances.

5.1.2 Unsuitable extinguishing media

Do not use water jets.

5.2 Special hazards arising from the substance or mixture

None.

5.3 Advice for fire fighters

Avoid generation of dust. Use extinguishing measures appropriate to the local circumstances. Use self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 *Personal precautions, protective equipment and emergency procedures*

6.1.1 *For non-emergency personnel*

Ensure adequate ventilation.
Keep dust levels to a minimum.
Keep unprotected persons away.
Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8).
Avoid inhalation of dust, ensure that sufficient ventilation or suitable respiratory protective equipment is used (see section 8).

6.1.2 *For emergency responders*

Ensure adequate ventilation.
Keep dust levels to a minimum.
Keep unprotected persons away.
Avoid contact with skin, eyes, and clothing – wear suitable protective equipment (see section 8).
Avoid inhalation of dust, ensure that sufficient ventilation or suitable respiratory protective equipment is used (see section 8).

6.2 *Environmental precautions*

Contain any spillage.
Keep the material dry if possible.
Cover area if possible to avoid unnecessary dust hazard.
Avoid uncontrolled spills to watercourses and drains (pH increase).
Any large spillage into watercourses or drains must be reported to the competent authority.

6.3 *Methods and material for containment and cleaning up*

In all cases avoid dust formation.
Keep the material dry if possible.
Pick up the (dry) product mechanically.
Use vacuum suction unit or shovel into bags.

6.4 *Reference to other sections*

For more information on exposure control, personal protection and disposal, please see sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 General recommendations

Avoid contact with the skin and eyes. Wear protective clothing (see section 8). Do not wear contact lenses. A portable eye rinse bottle is recommended. Minimise dust generation. Keep dust levels to a minimum. Dust sources should be sealed, turn on extractor. Filler systems should be sealed.

When handling sacks, the safety instructions on the manual handling of loads must be observed in accordance with Regulation 90/269/EEC. If using an open mixing container first fill with water, then allow the dry product to pour in carefully. Keep the height of fall low. Start up the stirrer slowly. Do not compress empty sacks – or only compress them inside an outer sack. Avoid contact with skin and eyes by personal protective equipment in

accordance with Section 8.2.2. Ensure adequate ventilation, if necessary use respiratory protection in

accordance with Section 8.2.2. For machine processing (e.g. using a plastering machine or continuous mixer), dust levels from sacks can be reduced by careful laying up, opening and emptying of the sacks and the use of a special additional equipment.

7.1.2 Notes on general hygiene measures in the workplace

Avoid inhalation, ingestion and contact with the skin and eyes. Do not eat, drink or smoke in the workplace. Wash your hands and face before taking breaks. Shower and change your clothes at the end of your shift. Do not wear contaminated clothing outside the workplace. General hygiene measures in the workplace necessitate appropriate organisational measures such as regular cleaning of the workplace with suitable cleaning equipment.

7.2 Conditions for safe storage, including any incompatibilities

Store under dry conditions. Minimise contact with air and prevent the ingress of moisture. Keep away from acids. Keep out of reach of children. Aluminium is not suitable for transportation or storage if there is a risk of contact with water.

No longer use the products after the specified storage period has expired. Under improper storage (ingress of moisture) or exceeding the maximum storage period, the effect of any chromate reducer contained may decrease (see section 2.3).

7.3 Specific end uses

The mixture is assigned to GISCODE ZP 1 (low-chromate cement-based products) (see section 15). Further information on the safe handling, protective measures and rules of conduct can be found in GISCODE ZP 1. It is available as part of the Hazardous Materials Information System of the

professional association of the construction industry at www.wingisonline.de.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

National occupational exposure limit (Germany):

CAS no.	Type of assessment value	Assessment value [mg/m ³]		Peak limit Fact. (Cat.) short-term value	Origin	Monitoring procedure, e.g.
Portland cement (dust)						
65997-15-1	Occupational exposure limit	8 h	5 (E)	Not defined	TRGS 900	TRGS 402
General dust threshold (not substance specific)						
	Occupational exposure limit	8 h	1.25 (A) 10 (E)	2 (II) 15 min	TRGS 900	TRGS 402

A = alveolene penetrant dust fraction

E = respirable dust fraction

8.2 Limitation and control of exposure

Dust generation should be avoided. Furthermore, appropriate protective equipment is recommended. Eye protection (e.g. protective goggles or visor) must be worn unless potential contact with the eye can be excluded by the nature and type of application (e.g. process enclosures). If necessary, face protection, protective clothing and safety shoes shall be worn.

8.2.1 Appropriate engineering controls

If operations generate dust or vapours, process enclosures, local exhaust ventilation, or other engineering controls must be available to keep airborne dust levels below recommended exposure limits.

8.2.2 Individual protection measures, such as personal protective equipment

8.2.2.1 Eye/face protection

Do not wear contact lenses. For powders, tight fitting goggles with side shields or wide vision full goggles in accordance with DIN EN 166:2002 to at least optical Class 2, mechanical strength F must be worn. A portable eye rinse bottle is recommended.

8.2.2.2 Skin protection

The mixture is classified as irritating to skin. Dermal exposure must therefore be minimised as far as technically feasible. Protective gloves made of or coated with nitrile (NBR) in accordance with DIN EN ISO 374-1:2018/Type A or B (test chemical K, thickness at least 0.2 mm) should be worn. These offer sufficient skin protection for up to 480 min. Standard protective working clothes which fully cover the skin, full length trousers, long-sleeved overalls with close-fitting cuffs at the openings, together with shoes that are resistant to caustics and dust penetration shall be worn.

8.2.2.3 Respiratory protection

Local extraction is recommended to keep dust exposure below the established threshold values. If there is still a risk of exceeding the threshold values, e.g. when handling the powder form of the opened dry product, then a suitable particulate filter mask in accordance with EN 149 shall be worn, depending on the expected exposure levels (low dust level: FFP1 mask; medium dust level: FFP2 mask; high dust level: FFP3 mask).

During manual or automatic processing of ready-to-use fresh mortar no respiratory protection is necessary.

8.2.2.4 Thermal hazards

There are no thermal hazards if handled properly.

8.2.3 Environmental exposure limitation and control

Exhaust air from the ventilation system should be filtered before discharge to the atmosphere. Avoid releasing the product to the environment. Contain any spillage. Uncontrolled spillage into watercourses must be reported to the competent authority.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- | | |
|--|---|
| a) Physical state: | solid, powder |
| b) Colour: | beige/grey |
| c) Odour: | odourless |
| d) Melting/freezing point: | > 450°C (study result, EU A.1 method) |
| e) Boiling point or initial boiling point and boiling range: | not applicable (solid with a melting point > 450°C) |
| f) Flammability: | non-flammable (study result, EU A.10 method) |
| g) Lower and upper explosive limit: | not applicable to solids |
| h) Flash point: | not applicable (solid with a melting point > 450°C) |
| i) Auto-ignition temperature: | no relative auto-ignition temperature below 400°C (study result, EU A16 method) |
| j) Decomposition temperature: | > 450°C |
| k) pH value: | 12 (saturated solution at 20°C) |
| l) Kinematic viscosity: | not applicable (solid with a melting point > 450°C) |
| m) Solubility in water: | 3 g/L |
| n) Partition coefficient - n-octanol-water (log-value) | not applicable |
| o) Vapour pressure: | not applicable (solid with a melting point > 450°C) |
| p) Density and/or relative density: | 2.8 g/cm ³ |
| q) Relative vapour density: | not applicable |

- r) Particle properties:

Product	Median value	Calculation of the median value	Measurement method	Deviation +/-
Thin-bed mortar	150 µm	$Md = \begin{cases} x_{(\frac{n+1}{2})} & \text{falls } n \text{ UNGERADE} \\ (x_{(\frac{n}{2})} + x_{(\frac{n}{2}+1)}) : 2 & \text{falls } n \text{ GERADE} \end{cases}$	Sieving DIN EN 933-1	100 µm

Key:

falls n UNGERADE	if n = ODD
falls n GERADE	if n = EVEN

9.2 Other information

Based on the current state of knowledge, the product is not defined as a nanomaterial pursuant to Recommendation 2011/696 EU.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Alkaline reaction with water. In contact with water an intended reaction takes place in which the product hardens and forms a solid mass, which does not react with its surroundings.

10.2 Chemical stability

The mixture is stable under normal handling and storage conditions (dry).

10.3 Possibility of hazardous reactions

No hazardous reactions.

10.4 Conditions to avoid

Prevent the ingress of air and moisture during storage to prevent hardening.

10.5 Incompatible materials

The moist product is alkaline and reacts exothermically with acids. It reacts with aluminium and brass forming hydrogen. $\text{CaO} + 2 \text{Al} + 7 \text{H}_2\text{O} \rightarrow \text{Ca}(\text{Al}(\text{OH})_4)_2 + 3 \text{H}_2$

10.6 Hazardous decomposition products

None.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes within the meaning of Regulation (EC) No. 1272/2008

The mixture as a whole has not been subjected to toxicological testing. The information on toxicological effects results from the corresponding information for the constituent cement.

	Hazard class	Result of the impact assessment for cement
(a)	Acute toxicity	Cement is not classified as an acutely toxic substance.
		Dermal Limit test, rabbit, 24 hours exposure, 2,000 mg/kg body weight – no lethality. [Reference (4)] Based on the available data, the classification criteria are not considered to be met.
		Inhalation Limit test, rat, at 5 g/m ³ , no acute toxicity. Study was conducted using Portland cement clinker, the main component of cement. [Reference (10)] Based on the available data, the classification criteria are not considered to be met.
		Oral In animal studies with cement kiln dust and cement dust no acute oral toxicity was observed. Based on the available data, the classification criteria are not considered to be met.
(b)	Skin corrosion/irritation	Cement has an irritating effect on the skin and mucous membranes. Dry cement in contact with moist skin or skin in contact with moist or wet cement may cause various irritating and inflammatory skin reactions, e.g. redness and fissures. Prolonged contact in combination with abrasion may cause serious damage to the skin. [Reference (4)]
(c)	Serious eye damage/irritation	The in vitro test indicated that Portland cement clinker (the main component of cement) causes different degrees of impact on the cornea. The calculated "irritation index" is 128. Direct contact with cement may cause corneal damage; through mechanical stress on the one hand and through immediate or delayed irritation or inflammation on the other. Direct contact with larger amounts of dry cement or splashes of wet cement may cause effects ranging from moderate eye irritation (e.g. conjunctivitis or blepharitis) up to severe eye damage and blindness. [Reference (11), (12)]

(d)	Respiratory or skin sensitisation	There are no indications of respiratory sensitisation. Based on the available data, the classification criteria are not considered to be met. [Reference (1)] Some people may develop eczema following contact with wet cement. This is triggered either by the pH value (irritant contact dermatitis) or by immunological reaction with water-soluble chromium (VI) (allergic contact dermatitis). [Reference (5), (13)]
(e)	Germ cell mutagenicity	No indications of germ cell mutagenicity. Based on the available data, the classification criteria are not considered to be met. [Reference (14), (15)]
(f)	Carcinogenicity	A causal relationship between cement and cancer has not been determined. Epidemiological studies did not allow any conclusions to be drawn regarding a relationship between exposure to cement and cancer. [Reference (1)] Portland cement is not classified as a human carcinogen pursuant to ACGIH A4: "Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories." [Reference (16)] Portland cement contains over 90% Portland cement clinker. Based on the available data, the classification criteria are not considered to be met.
(g)	Reproductive toxicity	Based on the available data, the classification criteria are not considered to be met.
(h)	STOT-single exposure	Exposure to cement dust may cause irritation of the respiratory system (pharynx, throat, lungs). Coughing, sneezing and shortness of breath may result following exposure above the occupational limit value. [Reference (1)] Occupational exposure to cement dust may cause impairment of respiratory function. However, insufficient information is currently available to derive a dose-response relationship.
(i)	STOT-repeated exposure	Long-term exposure to respirable cement dust above the occupational limit value may cause coughing, shortness of breath and chronic obstructive changes in the respiratory tract. No chronic effects were observed at low concentrations. [Reference (17)] Based on the available data, the classification criteria are not considered to be met.
(j)	Aspiration hazard	Not applicable, because cement is not present as an aerosol.

11.2 Information on other hazards

11.2.1. Endocrine disrupting properties

Taking into consideration the criteria pursuant to Regulations (EC) 1907/2006, (EU) 2017/2100 and (EU) 2018/605 no endocrine disrupting properties of cement that affect human health are known.

11.2.2. Other information

The cement constituent may exacerbate existing diseases of the skin, eyes and respiratory tract, e.g. in patients with pulmonary emphysema or asthma.

SECTION 12: ECOLOGICAL INFORMATION

The mixture as a whole has not been subjected to ecotoxicological testing. The information on ecotoxicological effects results from the corresponding information for the constituent cement.

12.1 Toxicity

Ecotoxicological tests with Portland cement with *Daphnia magna* (U.S. EPA, 1994a) and *Selenastrum coli* (U.S. EPA, 1993) have indicated only a slight toxic effect. Therefore the LC50 and EC50 values could not be determined. No toxic effects on sediments were determined either. The release of larger quantities of cement in water can cause an increase in the pH value and therefore be toxic to aquatic life under certain circumstances.

12.2 Persistence and degradability

Not applicable.

12.3 Bioaccumulative potential

Not applicable.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

Not applicable.

12.6 Endocrine disrupting properties

Taking into consideration the criteria pursuant to Regulations (EC) 1907/2006, (EU) 2017/2100 and (EU) 2018/605 no endocrine disrupting properties of cement that affect human health are known.

12.7 Other adverse effects

In accordance with the European regulations for the classification and labelling of substances, classification as hazardous to the environment is not necessary. The mixture contains Portland cement. The release of larger amounts in connection with water causes an increase in the pH value. The pH value drops rapidly with dilution (inorganic mineral construction material).

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

The mixture and containers/packaging that were used for transport/storage shall be disposed of in accordance with national and regional legislation.

Waste code according to the European Waste Catalogue: 10 13 14 (waste concrete and concrete sludge).

Unused residual amounts of product

Pick up dry, store in labelled containers and re-use if possible, taking into account the maximum storage time.

Moist products and product slurry

Do not allow moist products and product slurry to enter sewers or watercourses.

Packaging

Completely empty packaging and recycle (Interseroh). Otherwise dispose of completely empty packaging depending on packaging type according to the European Waste Catalogue, e.g. 15 01 01 (waste paper and cardboard packaging) or 15 01 05 (composite packaging).

SECTION 14: TRANSPORT INFORMATION

The mixture is not classified as hazardous for transport (ADR (Road), RID (Rail), ADN (Inland waterways), IMDG (Sea), and ICAO/IATA (Air)).

14.1 UN number or ID number

Not applicable.

14.2 UN proper shipping name

Not applicable.

14.3 Transport hazard class(es)

Not applicable.

14.4 Packing group

Not applicable.

14.5 Environmental hazards

Not applicable.

14.6 Special precautions for user

Avoid dust generation during transport.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

SECTION 15: REGULATORY INFORMATION

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

REACH authorisation: None

REACH restrictions on use: None

EU regulations:

The mixture does not contain any substances as defined by Directive 96/82/EC ("SEVESO"), is not an ozone depleting substance and is not a persistent organic pollutant.

The cement contained in the mixture is chromate reduced in accordance with Annex XVII to Regulation (EC) 1907/2006, no. 47.

National regulations Germany:

Water hazard class: WGK 1 (slightly hazardous for water)
Classification according to the AwSV.

Storage class: Storage class 13 according to TRGS 510
(non-flammable solids).

GISCODE (BG Bau): ZP 1 (cementitious products, chromate reduced).

15.2 Chemical safety assessment

A chemical safety assessment has not been carried out for this mixture.

SECTION 16: OTHER INFORMATION

All data are based on the current level of knowledge. However, this product safety data sheet expressly does not constitute a guarantee of any specific product characteristics.

16.1 Classifications and hazard statements:

Skin Irrit. 2; H315 – Skin irritant category 2; Causes skin irritation.

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Eye Dam. 1; H318 - Irreversible effects on the eyes category 1; Causes serious eye damage.
STOT SE 3; H335 – Specific target organ toxicity (single exposure) category 3; May cause respiratory irritation.

16.2 Precautionary statements:

P102: Keep out of reach of children.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352: IF ON SKIN: Wash with plenty of water.
P310: Immediately call a POISON CENTRE or doctor/physician.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray
P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P501: Dispose of contents/container to ...

16.3 Abbreviations:

AwSV Water German Ordinance on Facilities Handling Substances that are Hazardous to Water
EC50: Median effective concentration
LC50: Median lethal concentration
LD50: Median lethal dose
NOEC: No observed effect concentration
OEL: Occupational exposure limit
DNEL: Derived no-effect level
PBT: Persistent, bioaccumulative, toxic chemical
PNEC: Predicted no-effect concentration
STEL: Short-term exposure limit
TRGS 402 Technical Rule for Hazardous Substances 402 – Identification and assessment of the risks from activities involving hazardous substances: Inhalation exposure
TRGS 510 Technical Rule for Hazardous Substances 510 – Storage of hazardous substances in non-stationary containers
TRGS 900 Technical Rule for Hazardous Substances 900 – Occupational exposure limits
TWA: Time weighted average
vPvB: Very persistent, very bioaccumulative chemical

16.4 Key literature references:

- (1) *Portland Cement Dust - Hazard assessment document EH75/7*, UK Health and Safety Executive, 2006: <http://www.hse.gov.uk/pubns/web/portlandcement.pdf>.
- (2) *Technische Regel für Gefahrstoffe „Arbeitsplatzgrenzwerte“*, 2009, GMBI Nr.29 S.605.
- (3) MEASE 1.02.01 Exposure assessment tool for metals and inorganic substances, EBRC Consulting GmbH für Eurometaux, 2010: <http://www.ebrc.de/ebrc/ebrc-mease.php>.
- (4) *Observations on the effects of skin irritation caused by cement*, Kietzman et al, *Dermatosen*, 47, 5, 184-189 (1999).

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- (5) *Epidemiological assessment of the occurrence of allergic dermatitis in workers in the construction industry related to the content of Cr (VI) in cement*, NIOH, Page 11, 2003.
- (6) U.S. EPA, *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, 3rd ed. EPA/600/7-91/002, Environmental Monitoring and Support Laboratory, U.S. EPA, Cincinnati, OH (1994a).
- (7) U.S. EPA, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, 4th ed. EPA/600/4-90/027F, Environmental Monitoring and Support Laboratory, U.S. EPA, Cincinnati, OH (1993).
- (8) *Environmental Impact of Construction and Repair Materials on Surface and Ground Waters. Summary of Methodology, Laboratory Results, and Model Development*. NCHRP report 448, National Academy Press, Washington, D.C., 2001.
- (9) *Final report Sediment Phase Toxicity Test Results with Corophium volutator for Portland clinker* prepared for Norcem A.S. by AnalyGen Ecotox AS, 2007.
- (10) TNO report V8801/02, An acute (4-hour) inhalation toxicity study with Portland Cement Clinker CLP/GHS 03-2010-fine in rats, August 2010.
- (11) TNO report V8815/09, *Evaluation of eye irritation potential of cement clinker G in vitro using the isolated chicken eye test*, April 2010.
- (12) TNO report V8815/10, *Evaluation of eye irritation potential of cement clinker W in vitro using the isolated chicken eye test*, April 2010.
- (13) *European Commission's Scientific Committee on Toxicology, Ecotoxicology and the Environment (SCTEE) opinion of the risks to health from Cr (VI) in cement* (Europäische Kommission, 2002): http://ec.europa.eu/health/archive/ph_risk/committees/sct/documents/out158_en.pdf.
- (14) *Investigation of the cytotoxic and proinflammatory effects of cement dusts in rat alveolar macrophages*, Van Berlo et al, Chem. Res. Toxicol., 2009 Sept; 22(9):1548-58
- (15) *Cytotoxicity and genotoxicity of cement dusts in A549 human epithelial lung cells in vitro*; Gminski et al, Abstract DGPT conference Mainz, 2008.
- (16) *Comments on a recommendation from the American Conference of governmental industrial Hygienists to change the threshold limit value for Portland cement*, Patrick A. Hessel and John F. Gamble, EpiLung Consulting, June 2008.
- (17) *Prospective monitoring of exposure and lung function among cement workers, Interim report of the study after the data collection of Phase I-II 2006-2010*, H. Notø, H. Kjuus, M. Skogstad and K.-C. Nordby, National Institute of Occupational Health, Oslo, Norway, March 2010.

Internet:

<http://baua.de>

<http://publikationen.dguv.de>

<http://echa.europa.eu/de/candidate-list-table>

16.5 Revision

The following sections have been revised:

- 1.1 Product identifier:
- 2.3 Other hazards
- 4.1 Description of first aid measures
- 8.2.2.1 Eye/face protection
- 8.2.2.2 Skin protection
- 8.2.2.3 Respiratory protection
- 9.1 p), r) Density, particle properties
- 11.1 Information on hazard classes within the meaning of Regulation (EC) No. 1272/2008
- 11.2.1 Endocrine disrupting properties
- 11.2.2. Other information
- 12.6 Endocrine disrupting properties
- 12.7 Other adverse effects
- 13.1 Waste treatment methods
- 14.1 UN number or ID number
- 14.7 Maritime transport in bulk according to IMO instruments
- 15.1 Safety, health and environmental regulations...

Disclaimer:

The information provided in this safety data sheet (SDS) is based on the issuer's current state of knowledge in relation to the safety requirements of the mixture. It is expressly noted that the information does not contain a description of the nature of the product and does not constitute a guarantee of characteristics.

End of safety data sheet