

SECTION 1: IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE COMPANY/UNDERTAKING**1.1 Product identifier**

Mixture name: Light mortar

Synonyms: Mineral dry mortar;
Adhesive mortar, light-spatula / repair plaster / mortar, plaster base, filling mortar, repair mortar
Please note that this list may not be exhaustive.

Trade name: **FELS Leicht-Mörtel / -Putz, Multi-Leicht,
FELS Porenbeton Füllmörtel Typ 10 / Typ 30,
FELS Mineralischer Feinspachtel MFS, FELS Reparaturspachtel RP**

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

Relevant identified uses: building materials, construction, especially:

Adhesives for mineral insulation, fiber-reinforced light putty for insulation and light plates, universal fiber-reinforced filler and repair plaster and plaster base.

For repairing aerated concrete, mineral insulation boards and masonry voids.

Other uses are advised against.

1.3 Details of the supplier of the Safety Data Sheet

Name: Fels Vertriebs und Service GmbH & Co. KG
Address: Geheimrat-Ebert-Straße 12, D-38640 Goslar
Phone N°: +49(0) 5321 703 408
Fax N°: +49(0) 5321 703 425
E-mail of competent person responsible reach@fels.de
for SDS in the MS or in the EU:

1.4 Emergency telephone number

European Emergency N°: 112
National centre for Prevention and Treatment of Intoxications N°: **+49(0) 551 19240
(Universitätsklinikum Göttingen – GIZ Nord)**
Emergency telephone at the company +49(0) 39454 58 441
Available outside office hours: Yes No

SECTION 2: HAZARDS IDENTIFICATION**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

2.1.2. Additional information

For full text of classifications and hazard statements: see SECTION 16

2.2. Label elements

2.2.1. Labelling according to Regulation (EC) 1272/2008

Signal word: Danger

Hazard pictogram:



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 CENTER / doctor
P261: Avoid breathing dust/spray
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P501: Dispose of contents / container for proper disposal in accordance with national regulations

2.3. Other hazards

The mixture is low in chromate, so there is no risk of sensitization by chromate. In the form ready for use after addition of water, the content of soluble chromium (VI) is at most 0.0002% of the dry mass of the cement present. Precondition for the effectiveness of the chromate reduction is the correct dry storage and the observation of the maximum storage period.

The mixture does not meet the criteria for PBT or vPvB substance.
No other hazards identified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not relevant

3.2. Mixtures

Description of the mixture:

Dry mortar, Mixture of mineral binders and aggregates.

Constituents classified according to regulation (EC) 1272/2008:

CAS number	EC number	Registration No	Identification name	Weight % content (or range)	Classification according to Regulation (EC) No 1272/2008 [CLP]
65997-15-1	266-043-4	-	Portland Cement	20 ... 30 %	<i>Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335</i>

1305-62-0	215-137-3	01- 2119475151- 45-0046	Calcium dihydroxide	< 10%	<i>Skin Irrit. 2; H315</i> <i>Eye Dam. 1; H318</i> <i>STOT SE 3; H335</i>
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Substances of Very High Concern (SVHC), which have been published pursuant to Article 59 of Regulation (EC) No 1907/2006, are not contained in a concentration of more than 0.1 percent by mass.

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 brush the contaminated body surfaces 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.

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, and entails a risk of serious damage to the eye. There is no concern for adverse systemic effects because local effects (pH-effect) are the major health hazard.

4.3. Indication of any immediate medical attention and special treatment needed

Follow the advises 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 the surrounding fire.

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.1.2. Unsuitable extinguishing media

Do not use water jet.

5.2. Special hazards arising from the substance or mixture

None

5.3. Advice for fire fighters

Avoid generation of dust. Use breathing apparatus. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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, wear suitable protective equipment (see section 8).

6.1.2. For emergency responders

Keep dust levels to a minimum.

Ensure adequate ventilation.

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, wear suitable protective equipment (see section 8).

6.2. Environmental precautions

Contain the 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 must be alerted to the Environment Agency or other regulatory body.

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 product mechanically in a dry way.

Use vacuum suction unit, or shovel into bags.

6.4. Reference to other sections

For more information on exposure controls/personal protection or disposal considerations, please check section 8 and 13 of this safety data sheet.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

In areas where people work, do not eat, drink or smoke.

Avoid generation of dusts. With bags and use of open mixing container first fill with water, then let the dry product pour in carefully. Keep height of fall low. Start up stirrer slowly. Don't squeeze empty bags, respectively only in a cover bag. Avoid contact with skin and eyes by personal protective equipment in accordance with Section 8.2.2. Provide adequate ventilation, if necessary use respiratory protection in accordance with Section 8.2.2. During usage do not kneel in the fresh product.

For machine processing (eg. Plaster machine or continuous mixers), the dust can be reduced by careful laying up, opening and emptying the bags and the use of a special additional equipment.

No longer use of products after the specified storage period has expired, since the effect of the reducing agent contained decreases and the content of soluble chromium (VI) may exceed the limit set out in section 2.3. In these cases an allergic Chromate dermatitis may evolve with prolonged contact due to the water-soluble chromate contained in the product.

7.2. Conditions for safe storage, including any incompatibilities

Store under dry conditions. Prevent entry of water and moisture. Always store in original containers. Under improper storage (ingress of moisture) or exceeding the maximum storage period, the effect of a possibly contained chromate reducer may decrease (see section 7.1).

7.3. Specific end use(s)

This product is assigned to GISCODE ZP 1 (cement based products, chromate reduced) (see section 15). Further information on the safe handling, protection 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.gisbau.de.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

OELs (Europe):

CAS-No.	Type of limit	Time-weighted average (mg/m ³)		Short-term exposure limit (mg/m ³)		Origin
		8 h	15 min	15 min	4 (A)	
Calcium dihydroxide						
1305-62-0	Reference OEL	8 h	1 (A)	15 min	4 (A)	Directive (EU) 2017/164

A = respirable (alveoli) dust fraction

National OELs (Germany):

CAS-No.	Type of assessment value	Assessment value (mg/m ³)	Short-term exposure limit		Origin	Monitoring procedures, e.g.
			fact. (cat.)	period of time		
Portland cement (dust)						
65997-15-1	OEL	8 h	5 (E)	Not specified	TRGS 900	TRGS 402

Calcium dihydroxide						
1305-62-0	OEL	8 h	1 (E)	2 (I) 15 min	TRGS 900	TRGS 402
General dust limit (not substance specific)						
	OEL	8 h	1,25(A) 10 (E)	2 (II) 15 min	TRGS 900	TRGS 402

A = Alveoli accessible dust fraction

E = Respirable dust fraction

8.2. Exposure controls

8.2.1. Appropriate engineering controls

To reduce dust formation closed systems (eg silo with conveyor system), local exhaust systems or other engineering controls, such as plaster machine or continuous mixers with special additional equipment for dust detection should be used.

8.2.2. Individual protection measures, such as personal protective equipment

Generally

When using do not eat, drink or smoke. Wash hands and face before breaks and at the end of work and shower if necessary, to remove any dust. Avoid contact with skin and eyes strictly. Use skin care products. Immediately take off or remove moistened gloves, clothes, shoes, watches, etc. Thoroughly wash or clean clothing, shoes, watches, etc. before reuse.

Eye / face protection

In case of dust or spray risk use closely fitting goggles according to EN 166.

Skin Protection

Wear waterproof, abrasion-and alkali-resistant protective gloves with CE-labeling. Leather gloves are not suitable due to their permeability to water and may release chromate compounds.

During preparation and processing of ready to use mixture no chemicals protective gloves (Cat. III) are required. Studies have shown that nitrile soaked cotton gloves (layer thickness about 0.15 mm) offer sufficient protection over a period of 480 minutes. Change moistened gloves. Keep gloves ready to change.

General information on hand protection can be found in the professional association rule BGR / GUV-R 195.

Wear closed long sleeved protective clothing and tight shoes. If contact with fresh mortar can not be avoided, the protective clothing should also be waterproof. Make sure that no fresh mortar from above enters the shoes or boots.

Follow the skin protection plan. After work use skin care products in particular.

Respiratory Protection

If there is a risk of exceeding the exposure limit values, eg during open handling with the powdered dry product, an appropriate respirator must be used.

Mixing and transfer of dry mortar in open systems, such as manual mixing of dry mortars, loading of bags to plaster machines: Compliance to the OEL has to be ensured by effective dust-technical measures, such as local exhaust ventilation. If this is not possible, particle filtering half masks of type FFP2 (tested to EN 149) are to be used.

Manually processing of ready to use mortar: No respiratory protection is required.

Automated processing of mortar: No respiratory protection is required.

General Information on respiratory protection can be found in the BG rule BGR / GUV-R 190.

An operator training in the correct use of personal protective equipment is necessary to ensure the required efficacy.

8.2.3. Environmental exposure controls

Avoid release to the environment. Use surplus or properly dispose.

Air: Compliance with the dust emission limits; in Germany according to Technical Instructions on Air Quality Control (TA Luft).

Water: Do not allow the product to water, as this may cause an increase of pH. At a pH of above 9 ecotoxicological effects may occur. Wastewater and groundwater regulations shall be observed.

Soil: Compliance with Soil Protection legislation; in Germany according to the Federal Soil Protection Act (BBodSchG) and the Federal Soil Protection and Contaminated Sites Ordinance (BBodSchV). No special control measures required.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	White or grey, grainy or powdery
Odour:	odourless
Odour threshold:	not applicable
pH:	12,4 (saturated solution at 20 °C)
Melting point:	not applicable
Boiling point:	not applicable (solid with a melting point > 450 °C)
Flash point:	not applicable (solid with a melting point > 450 °C)
Evaporation rate:	not applicable (solid with a melting point > 450 °C)
Flammability:	non flammable
Explosive limits:	non explosive (void of any chemical structures commonly associated with explosive properties)
Vapour pressure:	not applicable (solid with a melting point > 450 °C)
Vapour density:	not applicable
Relative density:	0,7
Solubility in water:	3 g/L (20 °C)
Partition coefficient:	not applicable (inorganic material)
Auto ignition temperature:	no relative self-ignition temperature below 400 °C
Decomposition temperature:	at temperatures above 580 °C, Calcium dihydroxide decomposes to calcium oxide (CaO) and water (H ₂ O)
Viscosity:	not applicable
Oxidising properties:	no oxidising properties (Based on the chemical structure, the mixture does not contain a surplus of oxygen or any structural groups known to be correlated with a tendency to react exothermally with combustible material)

9.2. Other information

The product is not covered by current knowledge not covered by the definition of Nano-materials of 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 product is stable as long as it is stored properly and dry.

10.3. Possibility of hazardous reactions

No hazardous reactions (see 10.5).

10.4. Conditions to avoid

Prevent entry of water and moisture during storage (alkaline reaction and hardening with moisture).

10.5. Incompatible materials

Reacts exothermically with acids, the moist product is alkaline and reacts with acids, ammonium salts and base metals, such as aluminum, zinc, brass. In the reaction with base metals hydrogen is formed.

10.6. Hazardous decomposition products

No hazardous decomposition products are known for the mixture.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

The mixture as a whole has not been studied toxicologically. The information on toxicological effects result from the corresponding information for cement and calcium dihydroxide. Cements (common cements) and Portland cement clinker have the same toxicological and ecotoxicological properties.

	Hazard class	Result of the impact assessment for			
		Cement		Calcium dihydroxide	
(a)	Acute toxicity	Cement is not classified as acute toxic.		Calcium dihydroxide is not classified as acute toxic.	
		Dermal	Limit test, rabbit, 24 hours exposition, 2000 mg / kg body weight - no lethality. [Ref (4)] Based on the available data, the classification criteria are not met.	Dermal	LD50 > 2500 mg/kg bw (Calcium dihydroxide, OECD 402, rabbit)
		Inhalation	Limit test, rats with 5 g / m ³ , no acute toxicity. Study was conducted with Portland cement clinker, the main component of cement. [Reference (10)] Based on the available data, the classification criteria are not met.	Inhalation	No data available.

		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 met.	Oral	LD ₅₀ > 2000 mg/kg bw (OECD 425, rat)
(b)	Corrosive / irritating effect on skin		Cement has a skin and mucous membrane irritant effect. Dry cement in contact with moist skin or skin in contact with moist or wet cement can cause various irritating and inflammatory reactions of the skin, such as redness and fissure. Prolonged contact in combination with abrasion can cause serious skin damage. [Reference (4)]		Calcium dihydroxide is irritating to skin (in vivo, rabbit). Calcium dihydroxide is not skin corrosive (in vitro, OECD 431).
(c)	Serious eye damage / irritation		In the in vitro test showed Portland cement clinker (the main component of cement), different degrees of impact on the cornea. The calculated "irritation index" is 128. Direct contact with cement may cause corneal damage, by mechanical stress on the one hand and on the other by an immediate or delayed irritation or infection. Direct contact with larger amounts of dry cement or splashes of wet cement may cause effects ranging from moderate eye irritation (eg conjunctivitis or blepharitis) to severe eye damage and blindness. [Reference (11), (12)]		As a result of studies (in vivo, rabbit) calcium dihydroxide can lead to serious damage to eyes.
(d)	Sensitization of the respiratory tract and skin		There are no signs of respiratory sensitization. Based on the available data, the classification criteria are not met. [Reference (1)] Some persons can develop eczema after contact with wet cement. These are triggered either by pH (irritant contact dermatitis) or by immunological reaction with water soluble Cr (VI) (allergic contact dermatitis). [Reference (5), (13)]		Calcium dihydroxide is not classified as a skin sensitizer due to the action (change in pH) and the importance of calcium in the human diet.
(e)	Germ cell mutagenicity		No evidence for germ cell mutagenicity. Based on the available data, the classification criteria are not met. [Reference (14), (15)]		Calcium dihydroxide is not genotoxic (in vitro, OECD 471, 473 and 476).
(f)	Carcinomas geneity		A causal relationship between cement and cancer has not been determined. Epidemiological studies did not allow conclusions about a relationship between exposure to cement and cancer. [Reference (1)] Portland cement is not classified as a human carcinogen by ACGIH A4: "substances that can not be conclusively assessed concerning the carcinogenic for humans due to lack of data. In vitro tests or animal studies do not provide indications of carcinogenicity to classify the substance to another classification." [Reference (16)] Portland cement comprises about 90% Portland cement clinker. Based on the available data, the classification criteria are not met.		Calcium (given as Ca-lactate) is not carcinogenic (experimental result, rat). There is no carcinogenic risk due to the pH effect of Calcium dihydroxide. (Human epidemiological data available.)

(g)	Reproductive toxicity	Based on the available data, the classification criteria are not met.	Calcium (given as Ca-carbonate) is not toxic to reproduction (experimental result, mouse). Due to the pH effect there is no evidence of a reproductive risk (Human epidemiological data available).
(h)	Specific target organ toxicity after single exposure	Cement dust exposure may cause respiratory irritation (mouth, throat, lungs). Coughing, sneezing and shortness of breath may be the result if exposure above the occupational exposure limit. [Reference (1)] Occupational exposure to cement dust can lead to harm of respiratory function. However, there is currently no sufficient information to derive a dose-response relationship.	From human data it is concluded that calcium dihydroxide irritates the respiratory tract. As summarized and evaluated in the SCOEL recommendation (anonymous 2008), calcium dihydroxide is irritating to the respiratory system based on human data.
(i)	Specific target organ toxicity after repeated exposure	Long term exposure to respirable cement dust above the occupational exposure limit may cause coughing, shortness of breath and chronic obstructive changes in the respiratory tracks. At low concentrations, no chronic effects were observed. [Reference (17)] Based on the available data, the classification criteria are not met.	The toxicity of calcium by oral uptake was taken into account. The upper limit for the total daily intake of calcium (tolerable upper intake level - (UL), determined by the Scientific Center on Food (SCF)) for adults: UL=2,500 mg/day, corresponding to 36 mg/kg body weight/day (70 kg person). Toxicity of Ca(OH) ₂ by dermal uptake is not considered relevant as significant uptake is not expected and local skin irritation has been determined as the primary local effect. Toxicity of Ca(OH) ₂ by inhalation was considered by the 8 hour TWA value, which was stated by the Scientific Committee on Occupational Exposure Limits (SCOEL) as 1 mg/m ³ A dust (see section 8.1).
(j)	Aspiration threat	Not applicable because cement is not present as an aerosol.	It is not known that there is a risk of aspiration when handling Ca(OH) ₂ .

Health effects from exposure

Cement may increase existing diseases of the skin, eyes and respiratory tract, eg in pulmonary emphysema or asthma.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Cement

Ecotoxicological tests with Portland cement with *Daphnia magna* (U.S. EPA, 1994a) [reference (6)] and *Selenastrum coli* (U.S. EPA, 1993) [reference (7)] have shown only a slight toxic effect. Therefore the LC₅₀ and EC₅₀ values could not be determined [Reference (8)]. There were no toxic effects on sediments found [reference (9)]. The release of larger quantities of cement in water can cause a pH increase and therefore be toxic to aquatic life under certain circumstances.

Hydrated lime

Acute / long-term toxicity to fish	LC50 (96h) to freshwater fish: 50,6 mg/l LC50 (96h) to sea fish: 457 mg/l
Acute / long-term toxicity to aquatic invertebrates	EC50 (48h) to freshwater invertebrates: 49.1 mg/l LC50 (96h) to seawater invertebrates: 158 mg/l
Acute / long-term toxicity to aquatic plants	EC50 (72h) to freshwater algae: 184,57 mg/l NOEC (72h) to freshwater algae: 48 mg/l
Acute / long-term toxicity to microorganisms, eg bacteria	Calcium dihydroxide at high concentration causes an increase in the temperature and pH.
Chemical toxicity to aquatic organisms	NOEC (14d) to seawater invertebrates: 32 mg/l
Toxicity to soil organisms	EC10/LC10 or NOEC to soil macro organisms: 2000 mg/kg soil dw EC10/LC10 or NOEC to soil micro organisms: 12000 mg/kg soil dw
Toxicity to plants	NOEC (21d) to plants: 1080 mg/kg
General impact	Acute pH-effect. Although Calcium dihydroxide can be used for neutralization of acid water, water organisms can be damaged in excess of 1 g/l. A pH of > 12 will rapidly decrease due to dilution and carbonation.

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. Other adverse effects

The mixture contains Portland cement and calcium dihydroxide. The release of larger amounts in connection with water leads to a pH increase. The pH drops rapidly by dilution (inorganic-mineral building material).

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Disposal of calcium oxide as well as containers / packaging, which have been used to transport or storage shall be in accordance with national and regional regulations.

Waste code according to European Waste Catalogue: 10 13 04 (waste from calcination and hydration of lime).

Unused residual quantities of the product

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

Moisture products and product slurry

Do not let moisture products and product slurry enter drains or watercourses.

Packaging

Empty packaging and recycle (Interseroh). Otherwise, disposal of completely empty packaging depending on packaging type according to European Waste Catalogue Code 15 01 01 (waste paper and cardboard packaging) or 15 01 05 (composite packaging).

SECTION 14: TRANSPORT INFORMATION

Not a dangerous goods according to the regulations on the transport of dangerous goods ADR, RID, IMDG-Code, ICAO-TI, IATA-DGR.

14.1. UN-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

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Not applicable.

SECTION 15: REGULATORY INFORMATION**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

Authorisations according to REACH: Not required

Restrictions on use according to REACH: None

EU regulations: Calcium oxide is not a substance acc. to directive 96/82/EC ("SEVESO"), not an ozone depleting substance and not a persistent organic pollutant.

The cement is low in chromate according to Regulation (EC) No. 1907/2006, Annex XVII, No. 47.

National regulations Germany:

Water hazard class: WGK 1 (slightly hazardous for water)

Assessment acc. to AwSV

Storage class: LGK 13 by TRGS 510 (non-flammable solids)

GISCODE: 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

Data are based on our latest knowledge but do not constitute a guarantee for any specific product features and do not establish a legally valid contractual relationship.

16.1. Hazard Statements

Skin Irrit. 2; H315 – Skin irritation category 2; Causes skin irritation.
Eye Dam. 1; H318: - Irreversible effects on the eye category 1; Causes serious eye damage.
STOT SE 3; H335 – Specific target organ toxicity (single exposition) 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 CENTER / doctor / ...
P261: Avoid breathing dust/spray
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P501: Dispose of contents/container to ...

16.3. Abbreviations

AwSV Verordnung über Anlagen z. Umgang mit wassergefährdenden Stoffen
EC50: median effective concentration
LC₅₀: median lethal concentration
LD₅₀: median lethal dose
NOEC: no observable effect concentration
OEL: occupational exposure limit
DNEL: Limit below which the substance has no effect (Derived No-Effect Level)
PBT: persistent, bioaccumulative, toxic chemical
PNEC: predicted no-effect concentration
STEL: short-term exposure limit
TWA: time weighted average
vPvB: very persistent, very bioaccumulative chemical
TRGS 510: Technische Regel für Gefahrstoffe 510 Lagerung von Gefahrstoffen in ortsbeweglichen Behältern

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).
- (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 AnalyCen 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.

16.5. Revision

The following sections have been revised:

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|------|---|
| 1.3 | Details of the supplier of the safety data sheet |
| 8.1 | Control parameters |
| 11.1 | Information on toxicological effects |
| 15.1 | Safety, health and environmental regulations / legislation specific for the mixture |
| 16 | Other information |

Disclaimer

This safety data sheet (SDS) is based on the legal provisions of the REACH Regulation (EC 1907/2006; article 31 and Annex II), as amended. Its contents are intended as a guide to the appropriate precautionary handling of the material. It is the responsibility of recipients of this SDS to ensure that the information contained therein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. Information and instructions provided in this SDS are based on the current state of scientific and technical knowledge at the date of issue indicated. It should not be construed as any guarantee of technical performance, suitability for particular applications, and does not establish a legally valid contractual relationship. This version of the SDS supersedes all previous versions.

End of safety data sheet