

Safety data sheet for dry mortar

according to Annex II of the REACH Regulation (EC) No. 1907/2006



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1 Identification of the substance or preparation and the company

1.1 Product identifier

Probau Adhesive and Reinforcement Mortar Grey

1.2 Relevant identified uses of the substance or preparation, and uses advised against

Relevant identified uses: Dry mortar to be mixed with water for use as plastering mortar on masonry, concrete and thermal insulation composite systems.

Uses advised against: All other types of use are advised against.

1.3 Details of the supplier of the safety data sheet

BAHAG AG
Gutenbergstrasse 21
68167 Mannheim, Germany
Telephone: 0049(0)800/1016370
www.probau.eu

1.4 Email (qualified person): service@bauhaus.info Emergency telephone number

GGIZ Erfurt
Emergency telephone number 0049 361 730730

2 Hazards identification

2.1 Classification according to Regulation (EC) No. 1272/2008

The classification with regard to the irritating effect on skin and eyes is based on the results of animal testing [see section 16 c) Bibliography (4), (11) and (12)] and assumes the standard water to solids ratio of 0.4 to 0.6 generally used in practice, and a fine silica dust content (RCS) of < 1 mass percent.

Hazard class and hazard category:	<ul style="list-style-type: none">▪ Skin irritation, category 2 (Skin Irrit. 2)▪ Serious eye damage, category 1 (Eye Dam. 1)
Hazard statements (H statements):	<ul style="list-style-type: none">▪ H315 Causes skin irritation▪ H318 Causes serious eye damage

Dust generated by the dry preparation can irritate the respiratory system. Repeated inhalation of relatively large amounts of dust increases the risk of lung disorders.

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A highly alkaline solution is produced as soon as the dry preparation comes into contact with water or becomes moist. Due to its high alkalinity, moist mortar can cause irritation to the skin and eyes. Particularly if the mortar is contact with the skin over a longer period (e.g. when kneeling in moist mortar), this alkalinity can cause serious damage to the skin.

2.2 Label elements

Hazard pictogram:		
Signal word:	Danger	
Hazard statements:	H315	Causes skin irritation
	H318	Causes serious eye damage
Precautionary statements:	P102	Keep out of the reach of children.
	P280	Wear protective gloves/protective clothing/ eye protection/ face protection.
	P305+P351+ P338+P315	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
	P302+P352+ P332+P313	IF ON SKIN: Wash the skin with plenty of water and soap. If skin irritation occurs: Get medical advice/attention.
	P362	Take off contaminated clothing and wash before reuse.
Supplemental hazard information	If stored properly in dry conditions, the product will keep for at least 9 months from the date of manufacture. Low-chromate.	

2.3 Other hazards

The criteria for the identification of persistent, bioaccumulative and toxic substances (PBT) and very persistent and very bioaccumulative substances (vPvB) under Annex XIII of Regulation (EC) No. 1907/2006 are not met.

The preparation is low-chromate, which means that there is no danger of chromate sensitisation. When the preparation is ready to apply, after mixing with water, the soluble chromium(VI) content amounts to no more than 0.0002% of the dry mass of the cement content. For the chromate reduction to remain effective, the preparation must be stored properly, in dry conditions, and not be used after the expiration date.

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3 Composition/information on ingredients

3.1 Substances

Not applicable, since the product is a mixture (see section 3.2).

3.2 Mixtures

Mixture made up of cement in accordance with DIN EN 197-1, calcium hydroxide in accordance with DIN EN 459-1, stone aggregates, and additives

Table of hazardous ingredients

Substance	Concentration range (mass percent)	EC No.	CAS No.	Registration number (REACH)	Classification according to Directive 67/548/EEC	Classification according to Regulation (EC) No. 1272/2008 (CLP)	
Portland cement clinker	≥ 10 < 20 ^{a)}	266-043-4	6599-7-15-1	-	Xi; R37/38 - R41; R43	Skin Irrit. 2 Eye Dam. 1 STOT SE 3 Skin Sens. 1	H315 H318 H335 H317
Calcium dihydroxide	≥ 1 < 5	215-137-3	1305-62-0	01-2119475151-45-xxxx	Xi; R37/38 - R41	Skin Irrit. 2 Eye Dam. 1 STOT SE 3	H315 H318 H335

The full wording of the H statements and R-phrases can be found in Section 16.

4 First aid measures

4.1 Description of first aid measures

General notes

No special personal protective equipment is required for first aid responders. First aid responders should avoid contact with the moist mortar, however.

Following inhalation

Remove the dust source and ensure a supply of fresh air, or move the affected person into fresh air. Seek medical advice if the person affected feels ill, coughs or suffers persistent irritation.

Following skin contact

Rinse the affected area of skin immediately with plenty of water in order to remove all product residues. Immediately take off saturated gloves, clothing, shoes, watches etc. Thoroughly wash or clean the clothes, shoes, watches etc. before using them again. Consult a doctor if any skin discomfort occurs.

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Following eye contact

Do not rub the eyes when dry, since this mechanical stress could cause further damage to the eyes. Remove contact lenses, if present, and rinse the eye immediately under running water for at least 20 minutes, keeping the eyelid open, in order to remove all of the particles. If possible, use an isotonic eye wash solution (e.g. 0.9 % NaCl). Always consult the occupational medical officer or an eye specialist.

Following ingestion

DO NOT induce vomiting. If the person is conscious, rinse the mouth out with water and drink plenty of water. Consult a doctor or a poison centre.

4.2 Most important symptoms and effects, both acute and delayed

Eyes

Eye contact with the dry or moist product can cause serious and possibly lasting damage.

Skin

Even in its dry state, the product can irritate the skin if in prolonged contact with it and if the skin is moist (due to sweating or air humidity). Contact with moist skin can result in skin irritation, dermatitis or other serious skin damage.

4.3 Indication of any immediate medical attention and special treatment needed

If medical advice is sought, show this safety data sheet to the doctor, if possible.

5 Firefighting measures

5.1 Extinguishing media

The mixture, whether in its delivered condition or when mixed with water, is not flammable. Use extinguishing agents and firefighting measures suitable for the type of surrounding fire.

5.2 Special hazards arising from the substance or mixture

The product is neither explosive nor flammable and does not intensify fires in other materials.

5.3 Advice for firefighters

No special measures are required for firefighting. Do not allow the extinguishing media to enter the sewer system.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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6.1.1 Non-emergency personnel

Wear protective clothing, as described in Section 8. Follow the instructions for safe handling, as described in Section 7. No emergency plans or procedures are required.

6.1.2 Emergency responders

Respiratory protection equipment must be used, as described in Section 8.2.2, if there is high exposure to dust.

6.2 Environmental precautions

Do not allow the product to enter the sewer system, surface water or groundwater (raises the pH-value).

6.3 Methods and material for containment and cleaning up

Cover spilt material with a tarpaulin or sheet to prevent wind-blown dispersal, if appropriate. Collect the material in its dry state and, if possible, use it. When carrying out these tasks, take note of the wind direction and keep the drop height (e.g. from the shovel) as low as possible when shifting the material. Use an industrial vacuum cleaner/deduster that is suitable for at least dust class M (DIN EN 60335-2-69). Do not sweep up the dry material. Never use compressed air for cleaning. If dust is produced when cleaning up the dry material, personal protective equipment must be used at all costs. Avoid skin contact and inhalation of the dust.

Mortar that has already been mixed must be allowed to harden and can then be disposed of (see Section 13.1).

6.4 Reference to other sections

Sections 8 and 13.

7 Handling and storage

7.1 Precautions for safe handling

Do not eat, drink or smoke in work areas.

Avoid dust emissions. When using bags of the material and open mixing tanks, put the water in first and then carefully pour in the dry product. Do not lift higher than necessary. Start mixing at a slow speed. Do not compress the empty sacks unless they are first placed in a rubbish sack. Avoid contact with the eyes and skin by wearing personal protective equipment in accordance with Section 8.2.2. Ensure adequate ventilation and, if appropriate, wear respiratory protection in accordance with Section 8.2.2. Take care not to kneel in the freshly mixed product when working.

When machine-processing the material (e.g. using a plastering machine or continuous mixer), the amount of dust released can be minimised by placing, opening and emptying the sacks carefully and by using special accessory equipment.

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Do not use the product after its specified expiration date, since the effect of the reducing agent diminishes with age and the soluble chromium(VI) content may then exceed the limiting value stated in Section 2.3. In such cases, the soluble chromium in the product can cause allergic chromate dermatitis if the product is in prolonged contact with the skin.

7.2 Conditions for safe storage, including any incompatibilities

Store in dry conditions. Prevent the admittance of water and moisture. Always store in the original packaging. If stored incorrectly (e.g. in moist conditions) or used after the expiration date, any chromate-reducing components present may lose their effectiveness (see Section 7.1).

7.3 Specific end use(s)

This product is assigned to GISCODE ZP 1 (cement-based products, low in chromate) in the German GISBAU classification system (see Section 15). More detailed information on safe handling, protection measures and rules of behaviour is provided in GISCODE ZP 1. This code forms part of the hazardous substances information system provided by the Berufsgenossenschaft der Bauwirtschaft and can be found under www.gisbau.de

Further information regarding safe processing and use is given in the hazard assessment, which is supplied with the product and prepared in accordance with § 6 para. 7 of the German Hazardous Substances Ordinance (Gefahrstoffverordnung).^a

^aThe hazard assessment supplied with the product is provided by the manufacturer in addition to this safety data sheet.

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8 Exposure controls/personal protection

8.1 Control parameters

CAS No.	Type of assessment value	Assessment value [mg/m ³]		Peak limit [mg/m ³]		Origin	Monitoring procedure, e.g.
Portland cement (dust)							
65997-15-1	Occupational exposure limit	8 h	5 (E)	Not specified		TRGS 900	TRGS 402
General dust threshold value							
	Occupational exposure limit	8 h	3 (A) ----- 10 (E)	2 (II) 15 min	6 (A) ----- 20 (E)	TRGS 900	TRGS 402
Calcium dihydroxide							
1305-62-0	DNEL	8 h	1 (A)	15 min	4 (A)	REACH registration	TRGS 402

A = Alveolar dust fraction
E = Respirable dust fraction

8.2 Exposure controls

8.2.1 Appropriate engineering controls

In order to minimise dust production, closed systems (such as silos with conveying systems), local dust extraction systems or other technical control systems, such as plastering machines or continuous mixers with special accessory equipment for collecting dust, should be used.

8.2.2 Personal protection measures, e.g. personal protective equipment

General

Do not eat, drink or smoke during work. Wash hands and face during breaks and after work, and shower, if necessary, in order to remove any adhering dust. Contact with eyes and skin must be strictly avoided. Use skin-care products. Immediately take off or remove saturated gloves, clothing, shoes, watches etc. Thoroughly wash or clean the clothes, shoes, watches etc. before using them again.

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Eye and face protection

If dust is generated or if there is a danger of spray or splatter, wear tightly fitting protective goggles in accordance with EN 166.

Skin protection

Wear waterproof protective gloves that are wear-resistant and alkali-resistant and bear the CE mark. Leather gloves are not suitable, since they are permeable to water and can release compounds that contain chromates.

When using and applying the freshly mixed mixture, chemical-resistant gloves (Category III) need not be worn. Tests have shown that cotton gloves impregnated with nitrile (layer thickness of approximately 0.15 mm) provide sufficient protection for a period of 480 minutes. Change gloves if they become saturated. Keep spare gloves to hand.

General information on hand protection can be found in health and safety regulation (Berufsgenossenschaftlichen Regel) BGR/GUV-R 195.

Wear long-sleeved protective clothing and closed shoes. If contact with freshly mixed mortar cannot be avoided, then the protective clothing worn must also be waterproof. Make sure that no freshly mixed mortar finds its way into shoes or boots from above.

Observe the skin protection plan. Apply skin-care products, especially after finishing work.

Respiratory protection

If there is a danger of the exposure limits being exceeded, e.g. when handling the product in its powdered form in open spaces, then an appropriate breathing protection mask must be worn:

- **When mixing and transferring the dry mortar in open systems, e.g. when manually mixing dry-mix mortars with water or when tipping the sack contents into a plastering machine:** Effective dust removal measures, such as localised dust extraction, must be taken in order to ensure that the working limits are not exceeded. If this is not possible, then a Type FFP2 half face particulate mask (tested in accordance with EN 149) must be worn.
- **Manual application of the freshly mixed mortar:** No respiratory protection is necessary.
- **Machine application of the mortar:** No respiratory protection is necessary.

General information on respiratory protection can be found in health and safety regulation (Berufsgenossenschaftlichen Regel) BGR/GUV-R 190.

In order to ensure the effectiveness of these measures, employees must be briefed on how to use the personal protective equipment correctly.

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8.2.3 Environmental exposure controls:

Avoid releasing to the environment. Residual material should be used up or disposed of appropriately.

Air: Keep dust emissions below the limit values in accordance with the technical instructions regarding air (Technische Anleitung Luft).

Water: Do not allow the product to find its way into water bodies, since this can cause an increase in the pH value. Ecotoxicological effects can occur if the pH value rises above 9. Wastewater and groundwater legislation must be observed.

Soil: The German Soil Protection Act (Bundesbodenschutzgesetz) and the German Soil Protection and Contaminated Sites Ordinance (Bundes-Bodenschutz- und Altlastenverordnung) must be observed. No special controls are required.

9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

- (a) Appearance: Powdery, granular
Physical state: Solid
Colour: White, grey or coloured
- (b) Odour: Odourless
- (c) Odour threshold: None, since odourless
- (d) pH Value (when mixed with water, T = 20 °C): 11.5-13.5
- (e) Melting point: Not applicable
Freezing point: Not applicable
- (f) Initial boiling point and boiling range: Not applicable
- (g) Flash point (°C): Not applicable (solid is not flammable)
- (h) Evaporation rate: Not applicable
- (i) Flammability (solid, gas): Not applicable (solid is not flammable)
- (j) Upper/lower flammability or explosive limits: Not applicable
- (k) Vapour pressure: Not applicable
- (l) Vapour density: Not applicable
- (m) Relative density: Not applicable
- (n) Solubility in water (T = 20°C): Low (< 2 g/l with reference to calcium dihydroxide)
- (o) Partition coefficient: (n - octanol/water): Not applicable
- (p) Auto-ignition temperature: Not applicable (solid is not flammable)
- (q) Decomposition temperature: Not applicable
- (r) Viscosity: Not applicable
- (s) Explosive properties: Not explosive
- (t) Oxidising properties: Non-oxidising

9.2 Other information

Not applicable

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10 Stability and reactivity

10.1 Reactivity

Produces an alkaline reaction with water. In contact with water, an intentional reaction takes place in which the product hardens and forms a solid mass that does not react with its environment.

10.2 Chemical stability

The product is stable as long as it is stored properly and in dry conditions.

10.3 Possibility of hazardous reactions

No known hazardous reactions (see also 10.5)

10.4 Conditions to avoid

Avoid water infiltration and moisture during storage (the mixture produces an alkaline reaction with moisture and hardens).

10.5. Incompatible materials

Reacts exothermically with acids; the product is alkaline when damp and it reacts with acids, ammonium salts and non-noble metals such as aluminium, zinc and brass. Its reaction with non-noble metals produces hydrogen.

10.6 Hazardous decomposition products:

The preparation has no known hazardous decomposition products.

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11 Toxicological information

11.1 Information on toxicological effects

The preparation as a whole has not been toxicologically tested. The information given on the toxicological effects is taken from the corresponding information on cement and calcium hydroxide. Cements (normal cements), Portland cement clinker and flue dust have the same toxicological and ecotoxicological characteristics.

Hazard class	Results of the estimated effects for			
	Cement		Calcium dihydroxide	
(a) Acute toxicity	Cement is not classified as acutely toxic.		Calcium dihydroxide is not classified as acutely toxic.	
	Dermal	Limit test, rabbit, 24 hours of exposure, 2000 mg/kg body weight – no fatality. [Reference (4)] Based on the available data, the classification criteria are considered as not being fulfilled.	Dermal	LD50 > 2500 mg/kg bw (calcium dihydroxide, OECD 402, rabbit)
	Inhalation	Limit test, rat, with 5 g/m ³ , no acute toxicity. The study was carried out with Portland cement clinker, the main component of cement. [Reference (10)] Based on the available data, the classification criteria are considered as not being fulfilled.	Inhalation	No data available.
	Oral	In animal studies with cement kiln dust and cement dust, no acute oral toxicity was found. Based on the available data, the classification criteria are considered as not being fulfilled.	Oral	LD ₅₀ > 2000 mg/kg bw (OECD 425, rat)
(b) Skin corrosion/irritation	Cement has an irritating effect on skin and mucous membranes. If dry cement comes into contact with moist skin, or if moist or wet cement comes into contact with the skin, various irritating and inflammatory reactions, such as redness and cracking of the skin, can occur. Prolonged contact in conjunction with friction can lead to serious skin damage. [Reference (4)]		Calcium dihydroxide irritates the skin (in vivo, rabbit). As a result of various studies, calcium dihydroxide is classified as a skin irritant (H315 – Causes skin irritation; R38 – Irritating to skin).	
(c) Serious eye damage/irritation	In the in vitro test, Portland cement clinker (the main component of cement) affected the cornea with varying degrees of severity. The calculated "irritation index" is 128. Direct contact with cement can cause damage to the cornea, firstly as a result of mechanical effects and secondly as a result of immediate or delayed irritation or inflammation. Direct contact with larger quantities of dry cement or splashes of moist cement can have consequences ranging from moderate eye irritation (e.g. conjunctivitis or inflammation of the eyelid) to serious damage and blindness. [Reference (11), (12)]		Studies (in vivo, rabbit) have shown that calcium dihydroxide can cause serious eye damage (H318 – Causes serious eye damage; R41 – Risk of serious damage to eyes).	

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(d)	Respiratory or skin sensitisation	<p>There are no indications of respiratory sensitisation. Based on the available data, the classification criteria are considered as not being fulfilled. [Reference (1)]</p> <p>Some individuals may develop skin eczema after contact with moist cement. This is caused either by the pH value (contact dermatitis) or by immunological reactions with soluble chromium(VI) (allergic contact dermatitis). [Reference (5), (13)]</p>	<p>Due to its type of action (pH alteration) and the significance of calcium in human nutrition, calcium dihydroxide is not classified as skin sensitising.</p>
(e)	Germ cell mutagenicity	<p>No indications of germ cell mutagenicity. Based on the available data, the classification criteria are considered as not being fulfilled. [Reference (14), (15)]</p>	<p>Calcium dihydroxide has no known genotoxic potential (bacterial reverse mutation assay (Ames test, OECD 471):negative).</p>
(f)	Carcinogenicity	<p>No cause and effect relationship has been established between cement and cancer. Epidemiological studies show no indication of a connection between exposure to cement and cancer incidence. [Reference (1)]</p> <p>Portland cement is not classified as a human carcinogen according to ACGIH A4: "There are inadequate data on which to classify the agent in terms of its carcinogenicity in humans. In vitro or animals studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories." [Reference (16)]</p> <p>More than 90% of Portland cement is made up of Portland cement clinker.</p> <p>Based on the available data, the classification criteria are considered as not being fulfilled.</p>	<p>Calcium (administered as calcium lactate) is not carcinogenic (experiment result, rat). There is no carcinogenic risk arising from the pH effects of calcium dihydroxide.</p> <p>(Epidemiological data from humans is available).</p>
(g)	Reproductive toxicity	<p>Based on the available data, the classification criteria are considered as not being fulfilled.</p>	<p>Calcium (administered as calcium carbonate) is not reprotoxic (experiment result, mouse). There are no indications of risks to reproduction caused by the pH effect (epidemiological data from humans is available).</p>
(h)	Specific target organ toxicity (STOT) single exposure	<p>Exposure to cement dust can cause irritation to the respiratory organs (pharynx, throat, lungs). Coughing, sneezing and shortness of breath may result if the exposure time exceeds the occupational exposure limit. [Reference (1)]</p> <p>Occupational exposure to cement dust can result in impairment of the respiratory functions. Currently, however, there is insufficient evidence from which the exposure-response relationship could be derived.</p>	<p>Calcium dihydroxide irritates the respiratory tract (STOT SE 3 (H335 – May cause respiratory irritation; R37 – Irritating to respiratory system))</p>
(i)	Specific target organ toxicity (STOT) repeated exposure	<p>Long-term exposure to respirable dust, exceeding the occupational exposure limit, can lead to coughing, shortness of breath and chronic obstructive changes in the respiratory tract. No chronic effects have been observed in the case of low concentrations. [Reference (17)]</p> <p>Based on the available data, the classification criteria are considered as not being fulfilled.</p>	<p>Classification is irrelevant</p>
(j)	Aspiration hazard	<p>Not applicable, since cement is not used as an aerosol.</p>	<p>Classification is irrelevant</p>

Health effects caused by exposure

Cement can worsen existing skin, eye and respiratory tract conditions, such as emphysema or asthma.

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12 Ecological information

12.1 Toxicity

Cement

Ecotoxicological investigations with Portland cement on daphnia magna (U.S. EPA, 1994a) [Reference (6)] and selenastrum Coli (U.S. EPA, 1993) [Reference (7)] have shown only a slight toxic effect. For this reason, it was not possible to determine the LC50 and EC50 values. [Reference (8)]. No toxic effects could be found on sediments either. [Reference (9)] However, the release of larger quantities of cement into water could cause an increase in the pH value of the water and thus make it toxic to aquatic life, under certain circumstances.

Calcium hydroxide

Acute/long-term toxicity to fish	LC50 (96h) for freshwater fish: 50.6 mg/l LC50 (96h) for saltwater fish: 457 mg/l
Acute/long-term toxicity to aquatic invertebrates	EC ₅₀ (48h) for freshwater invertebrates: 49.1 mg/l LC ₅₀ (96h) for saltwater invertebrates: 158 mg/l
Acute/long-term toxicity to aquatic plants	EC ₅₀ (72h) for freshwater algae: 184.57 mg/l NOEC (72h) for freshwater algae: 48 mg/l
Acute/long-term toxicity to micro-organisms, such as bacteria	In high concentrations, calcium dihydroxide causes an increase in temperature and in the pH value.
Chemical toxicity to aquatic organisms	NOEC (14d) for saltwater invertebrate organisms: 32 mg/l
Toxicity to soil-dwelling organisms	EC ₁₀ /LC ₁₀ or NOEC for soil-dwelling macro-organisms: 2000 mg/kg soil dw EC ₁₀ /LC ₁₀ or NOEC for soil-dwelling micro-organisms: 12000 mg/kg soil dw
Toxicity to plants	NOEC (21d) for plants: 1080 mg/kg
General effect	Acute pH effect. Although calcium dihydroxide can be used to neutralise overly acidified water, aquatic organisms can be damaged if the 1 g/l limit is exceeded. A pH value greater than 12 will reduce rapidly as a result of dilution and carbonation.

12.2 Persistence and degradability

Not applicable

12.3 Bioaccumulative potential

Not applicable

12.4 Mobility in soil

No details available.

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12.5 Results of PBT and vPvB assessment

Not applicable

12.6 Other adverse effects

The preparation contains Portland cement clinker, flue dust and calcium hydroxide. The release of larger quantities in conjunction with water results in an increase in pH value. The pH value sinks rapidly due to dilution (inorganic mineral construction material).

13 Disposal considerations

13.1 Waste treatment methods

Remaining, unused quantities of the product

Collect when dry, store in labelled containers and reuse if possible, making sure to observe the expiry date. Alternatively, mix the remaining quantity with water, taking care to avoid all skin contact and to prevent dust production, and dispose of the material in accordance with the local and official regulations after it has hardened.

Moist products and product slurry

Allow moist products and product slurry to fully harden and do not allow them to enter water bodies or the sewer system. Dispose of the material as described under "Hardened product".

Hardened product

Dispose of the hardened product in accordance with the rules and regulations of the local authorities. Do not allow the product to enter the sewer system. The hardened product must be disposed of in the same way as concrete waste and concrete slurry.

Waste code numbers in accordance with the German Waste Catalogue Ordinance, depending on origin: 17 01 01 (concrete) or 10 13 14: (concrete waste and concrete slurry)

Packaging

Empty the packaging completely and send for recycling. Otherwise, dispose of the completely emptied packaging according to the packaging type in accordance with waste code number AVV 15 01 01 (paper waste and cardboard packaging) or 15 01 05 (composite packaging).

14 Transport information

Non-hazardous material in accordance with the regulations for the transport of hazardous goods ADR, RID, ADN, IMDG-Code, ICAO-TI, IATA-DGR.

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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 MARPOL 73/78 and the IBC Code

Not applicable

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15 : Regulatory information

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

REACH Regulation (EC) No. 1907/2006 (REACH), Annex XVII No. 47 (Chromium VI Compounds)

German Ordinance on Hazardous Substances (Gefahrstoffverordnung)

Storage class in accordance with TRGS 510 (Technical Rules for Hazardous Substances): storage class 13 (non-flammable solids)

Water hazard class (Wassergefährdungsklasse): WGK 1 (slightly harmful to water) self-assessment in accordance with the German Regulation on the Classification of Substances Hazardous to Water (VwVwS)

GISCODE (German Hazardous Substances Classification): ZP1 (products containing cement, low-chromate)

Ordinance on the European Waste Catalogue (German Waste Catalogue Ordinance, AVV)

Technical Rules for Hazardous Substances 402, Identification and assessment of the risks from activities involving hazardous substances: Inhalation exposure (TRGS 402)

Technical Rules for Hazardous Substances 900, Occupational exposure limits (TRGS 900)

15.2 Chemical safety assessment

No chemical safety assessment has been carried out for this mixture.

16 Other information

a) Changes made to the previous version of the safety data sheet

Completely new version

b) Abbreviations and acronyms

ACGIH	American Conference of Governmental Industrial Hygienists	
ADR/RID	European Agreements on the Transport of Dangerous Goods by Road/Railway	European agreement on the international transport of hazardous goods by road/Regulation regarding the international transport of hazardous goods by rail
APF	Assigned Protection Factor	Protection factor for respiratory protection masks

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AVV	Ordinance on the European Waste Catalogue (German Waste Catalogue Ordinance, (Abfallverzeichnis-Verordnung AVV))	
CAS	Chemical Abstracts Service	International standard for chemical substance information
CLP	Classification, Labelling and Packaging (Regulation (EC) No. 1272/2008)	Classification, identification symbols and packaging of substances and mixtures (Regulation (EC) No. 1272/2008)
DNEL	Derived No-Effect Level	The derived level of exposure without any detrimental effect
EC10	Effective concentration at 10% mortality rate	The effective concentration at a mortality rate of 10%
EC50	Half maximal effective concentration	Median effective concentration
ECHA	European Chemicals Agency	
EINECS	European Inventory of Existing Commercial Chemical Substances	
EPA	See HEPA	
HEPA	High Efficiency Particulate Air filter	Highly efficient type of air filter
IATA	International Air Transport Association	
IMDG	International agreement on the Maritime transport of Dangerous Goods	Labelling of hazardous goods for hazardous goods in maritime transport
IUPAC	International Union of Pure and Applied Chemistry	
LC10	Lethal concentration at 10% mortality rate	The lethal concentration at a mortality rate of 10%
LC50	Median lethal concentration	The median lethal concentration of a substance
LD10	Lethal dose at 10% mortality rate	The lethal dose at a mortality rate of 10%
LD50	Median lethal dose	
MEASE	Metals estimation and assessment of substance exposure	
NOEC	No observed effect concentration	Highest concentration without any observable harmful effect
OECD	Organisation for Economic Co-operation and Development	
PBT	Persistent, bio-accumulative and toxic	
PROC	Process category	
REACH	Registration, Evaluation and Authorisation of Chemicals (Regulation (EC) No. 1907/2006)	
SDB	Safety data sheet (Sicherheitsdatenblatt)	
STOT	Specific target organ toxicity	
TRGS	Technical Rules for Hazardous Substances (Technische Regeln für Gefahrstoffe)	
UVCB	Substances of Unknown or Variable composition, Complex reaction products or Biological materials	

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vPvB	Very persistent, very bioaccumulative	
VwVwS	Regulation on the Classification of Substances Hazardous to Water (Verwaltungsvorschrift wassergefährdende Stoffe)	

c) Key literature references and sources for data

- (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 No.29 S.605.* (Technical Rules for Hazardous Substances "Occupational exposure limits")
- (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.
- (18) *Anonymous*, 2006: Tolerable upper intake levels for vitamins and minerals Scientific Committee on Food, European Food Safety Authority, ISBN: 92-9199-014-0 [SCF document]

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(19) Anonymous, 2008: Recommendation from the Scientific Committee on Occupational Exposure Limits (SCOEL) for calcium oxide (CaO) and calcium dihydroxide (Ca(OH)₂), European Commission, DG Employment, Social Affairs and Equal Opportunities, SCOEL/SUM/137 February 2008

d) Methods of evaluating information referred to in Article 9 of Regulation (EC) No. 1272/2008 used for the purpose of classification:

The evaluation was performed according to Article 6, Paragraph 5 and Annex I of Regulation (EC) No. 1272/2008.

e) Full text of the R-phrases, hazard statements, safety phrases and precautionary statements

Description of the special risks (R-phrases)

- R 37 Irritating to respiratory system ^{a)}
- R 38 Irritating to skin ^{a)}
- R 41 Risk of serious damage to eyes
- R 43 May cause sensitisation by skin contact

Safety advice (S-Phrases)

- S 2 Keep out of the reach of children
- S 22 Do not breathe dust
- S 24 Avoid contact with skin ^{b)}
- S 25 Avoid contact with eyes ^{b)}
- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
- S 36 Wear suitable protective clothing ^{c)}
- S 37 Wear suitable gloves ^{c)}
- S 39 Wear eye/face protection ^{c)}
- S 46 If swallowed, seek medical advice immediately and show this container or label

Hazard warnings

- H 315 Causes skin irritation
- H 317 May cause an allergic skin reaction
- H 318 Causes serious eye damage
- H 335 May cause respiratory irritation
- H 373 May cause damage to the lungs through prolonged or repeated exposure via inhalation

Precautionary statements

- P102 Keep out of reach of children.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

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P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338+P315	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
P302+P352+P332+P313	IF ON SKIN: Wash the skin with plenty of water and soap. If skin irritation occurs: Get medical advice/attention.
P362	Take off contaminated clothing and wash before reuse.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

(f) Advice on training

No additional training above and beyond the required briefing for carrying out activities with hazardous substances is necessary.

Exclusion clause

The information in this safety data sheet describes the safety requirements for our product and is based on our knowledge at the time of writing. The information does not represent a guarantee of product properties. The recipient of our product is fully responsible for complying with all existing statutes, ordinances, codes and standards, including those not mentioned in this data sheet.