

**GANTREX™ 035**

**1. Identification of the substance/mixture and of the company/undertaking**

**1.1 Product identifier:**

GANTREX™ 035 mortar 0-4 mm

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

Dry mortar to be mixed with water

Identified uses for professionals including process categories and descriptors according to ECHA Guidance R.12 (ECHA-2010-G-05) are listed in Section 16.

**1.3 Details of the supplier of the safety data sheet**

GANTREX GmbH

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**1.4 Emergency telephone number**

Giftinformationszentrum Nord, Tel. +49 (0) 551 19240 Hours of operation: Monday-Sunday from 0.00-24.00 h

**2. Hazards identification**

**2.1 Classification of the substance or mixture**

**2.1.1 Classification as per EU Regulation n° 1272/2008 [CLP]**

Irritating to skin 2, H315.

Risk of damage to eyes 1, H318.


STOT single exposure 3, H335

**2.1.2 Further Information**

If cement/ binding agents come into contact with water or become damp, a strongly alkaline solution is produced. Because of their high alkalinity, damp cement/binding agents can cause skin and eye irritation.

**2.2 Label elements**

**2.2.1 Label elements as per EU Regulation n° 1272/2008**

Hazard pictogram		
Signal word	Danger	
<b>Hazard-determining components of labeling</b> Portland cement (chromate reduced): CAS-No. 65997-15-1		
Hazard warning	H315	Causes skin irritation
	H318	Causes serious eye damage
	H335	May cause respiratory irritation

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Safety information	P102 P280 P305+P351+P338 and P310  P302+P352 and P332+P313 P261 and P304+ P340 and P312  P362 P501	Keep out of the reach of children. Wear protective gloves and eye protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing Immediately call a POISON CENTER or doctor/physician. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Avoid breathing dust. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. Take off contaminated clothing and wash before reuse. Dispose of contents/ packaging at the appropriate waste collection point.
Additional information	This preparation is low chromate. Additives in the cement component reduce its soluble chromium-(VI)-compounds to below 2ppm. The effectiveness of the chromate reduction depends on correct storage and observing the use-by date.	

**2.3 Other hazards**

The building materials do not meet the criteria for PBT or vPvB in accordance with Annex XIII of the REACH Regulation (EC) No 1907/2006.

The product contains chromate reducing agents, which bring down the water-soluble chromium (VI) content to less than 0.0002%. Incorrect storage (ingress of moisture) or overlong storage the chromate reducers in the product can lose their effectiveness prematurely and the cement/binding agent may produce a sensitising effect on contact with the skin (R43 or H317 or EU H203).

**Further Information**

Full text of R-, H- and EUH-phrases: see section 16.

**3. Composition/ Information on ingredients**

**3.1 Substances**

Not applicable. The products are mixtures.

**3.2 Mixtures**

Preparation/ mix of: mineral binding agents, aggregates and additives.

**Hazardous ingredients:**

Constituante	Concentration range (M.-%)	EC-No.	CAS-No	Registration No.	Classification according to (EC) No. 1272/2008 (CLP)	
Portland cement (chromate reduced)	25-60 %	266-043-4	65997-15-1	(a)	Skin Irrit. 2 Eye Dam. 1 STOT SE 3	H315 H318 H335

(a) Portland cement clinker is exempt from registration under Article 2.7(b) and Annex V.10 of EC Regulation n° 1907/2006 (REACH).

**4. First aid measures**

**4.1 Description of first aid measures**

**General advice:** First aiders do not require any special personal protective equipment. However, first aiders should avoid contact with wet cement/binding agents.

**Following eye contact:** Do not rub eyes dry, as this may cause further damage to the cornea. If necessary, remove contact lenses and immediately raised eyelid and rinse eye under running water for at least 20 mins in order to remove all particles. Whenever possible use isotonic eyewash solution (0.9% NaCl). Always seek specialist advice from occupational health practitioner or ophthalmologist.

**Following skin contact:** Remove dry cement/binding agent and wash with plenty of water. Rinse off wet cement/binding agent thoroughly with water. Remove sodden clothing, shoes, watches etc and clean these thoroughly before reusing. Seek medical treatment in all cases of irritation or burns.

**Following inhalation:** Move to fresh air. Dust should be quickly removed from throat and nose. Consult a doctor if the subject feels unwell or if coughing or irritation persists.

**Following ingestion:** Do not induce vomiting. If the person is conscious, wash out mouth with water and give plenty of water to drink. Get immediate medical attention or contact the poison control center.

#### 4.2 Most important symptoms and effects, both acute and delayed

**Eyes:** Cement/ binding agents (dry or wet) can cause serious and potentially chronic damage if they come in contact with the eyes.

**Skin:** Prolonged contact with cement/binding agents can cause irritation to skin that is moist (from sweat or atmospheric humidity). Contact between cement/binding agents and moist skin can provoke skin irritation, dermatitis or serious skin problems. For further information see §16.3 (1).

**Inhalation:** Repeated inhalation of large quantities of cement/binding agents over a long period increases the risk of lung disorders.

**Environment:** In normal use, cement/binding agents do not present any danger to the environment.

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

If a doctor is consulted, please produce this safety data sheet.

### 5. Firefighting measures

#### 5.1 Extinguishing media:

**Suitable extinguishing media:** The products are not flammable. Use extinguishing measures that are appropriate to the environment.

**Extinguishing media which must not be used for safety reasons:** High volume water jet.

**5.2 Special hazards arising from the substance or mixture:** Read-for-use mortars are non-combustible and non-explosive and will not facilitate or sustain the combustion of other materials.

**5.3 Advice for firefighters:** In the event of fire, wear self-contained breathing apparatus.

Prevent extinguishing water used by the fire department, or any other forms of the diluted product, from ending up in surface water or drinking water reservoirs. Contaminated extinguishing water and soil must be disposed of in accordance with official regulations.

### 6. Accidental release measures:

**6.1 Personal precautions, protective equipment and emergency procedures** Do not breathe dust. Use personal protective equipment. When handling the product, follow hygiene and safety precautions. Protect leaked material with tarpaulins to prevent it blowing away. (See section 7.)

**6.2 Environmental precautions:** Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

Contact the responsible authority immediately if the product ends up in the soil, a body of water, or the sewer system.

**6.3 Methods and material for containment and cleaning up:** Absorb spilled material and reuse, if possible. Where possible, use dry methods to clean, such as vacuum exhaust (portable devices with highly efficient filter systems (EPA and HEPA filters, EN 1822-1:2009) or

equivalent techniques), which do not generate dust formation. Never use compressed air for cleaning.

If dust is formed applying a dry cleaning method, personal protective equipment must be used. Avoid inhalation of flue dust and skin contact with the material. Place spilled material into a container for potential subsequent use.

#### 6.4 Reference to other sections:

See Sections 8 and 13 for further details.

## 7. Handling and storage

### 7.1 Precautions for safe handling:

#### Advice on safe handling

Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothing. Do not eat, drink, smoke or take snuff at work. Keep away from food and drink. Do not allow product to come in contact with humid air before use.

For bagged goods and when using open mixing containers, first fill with water, then carefully add the dry cement. Maintain low drop height. Start stirrer slowly.

#### Advice on protection against fire and explosion

No special protective measures against fire required.

#### Further information on handling

When handling the product, follow hygiene and safety precautions. Handle, store and transport in compliance with local regulations and in labelled containers that are suitable for this product. When using do not eat or drink.

### 7.2 Conditions for safe storage, including any incompatibilities:

#### Requirements for storage rooms and vessels

See information supplied by the manufacturer. Store only in the original container. Do not use aluminum containers due to incompatibility of the materials. Never allow product to come in contact with water or humid air during storage. Keep in a dry, cool place. Protect from contamination. Use only clean equipment.

#### Further information on storage conditions

When not in use, the product must be stored in its original transport packing. Keep containers dry and tightly closed to avoid moisture absorption and contamination. Proper storage and compliance with the expiration date is a prerequisite for the effectiveness of the chromate reduction.

Storage class: VCI Storage class 13 (non-flammable solids).

### 7.3 Specific end uses

This product is categorised as GISCODE ZP 1 (low chromate cement based products) (see §15). Further information on safe handling, precautionary measures and codes of conduct can be found in GISCODE ZP 1. It is available as part of the hazardous substances information system of the building industry's trade association at [www.gisbau.de](http://www.gisbau.de).

## 8. Exposure controls/Personal protection

### 8.1 Control parameters

(Germany)

Type of assessment	Assessment value	Peak limit	Source	Monitoring procedure, eg.	
<b>General dust exposure limit value</b>					
Occupational exposure limit value	8h	1.25 mg/m <sup>3</sup> (A) 10 mg/m <sup>3</sup> (E)	2 (II) 15 min	20 (E) TRGS 900	TRGS 402
<b>Water soluble chromium (VI)</b>					
Conditions of restriction		2 ppm in the cement	not specified	EU Regulation n <sup>o</sup> 1907/2006	EN 196-10

A = Respirable dust fraction.

E = Inhalable dust fraction.

### 8.2 Exposure controls

#### 8.2.1 Appropriate engineering controls

Measures to avoid skin contact according to state-of-the-art.

### 8.2.2 Individual protection measures, such as personal protective equipment

**General information:** Do not eat, drink or smoke when working. Wash hands and if necessary shower before breaks and after work to remove adherent cement/binding agent. Avoid contact with eyes and skin. After working with cement/binding agent, workers should wash or shower and use skin care products. Clean contaminated clothing, footwear, watches, etc. thoroughly before re-using them.

**Respiratory protection:** For spraying (PROC 7 und PROC 11), use appropriate respiratory protection, e.g. half-face mask with particle filter type FFP1 (e.g. according to EN 149, EN 140, EN 14387, EN 1827) or national standard. In the case of respirable dust and/or fumes, use self-contained breathing apparatus and dust impervious protective suit.

**Hand protection:** Protective gloves must be resistant to chemicals. The manufacturer recommends the following glove materials: nitril-impregnated cotton gloves with CE Mark. Safety gloves should be selected for the actual conditions of use and in accordance with the instructions for use provided by the manufacturer. Use tested protective gloves. Protective gloves should be replaced immediately if damaged or in case of signs of wear. Please note that the daily use of chemical gloves in practice may be considerably shorter than the permeation time calculated in EN 374 as a result of many different factors (for example temperature). Gloves made of the following materials are not suitable: leather gloves. Wear gloves only with clean hands. Wash and dry one's hands after use of gloves. Preventive skin protection by skin protection cream.

**Eye protection:** In case of risk of splashing, wear protective glasses: Tightly fitting safety goggles (EN 166).

**Skin protection:** Wear suitable protective clothing. Protect from water. Impervious clothing, long sleeved clothing / closed work clothing, safety shoes / boots. Take off all contaminated clothing immediately. Avoid contact of powder with neck and wrists due to possible skin irritation and / or dermatitis. No rings, watches or similar things should be worn. Product residues can remain and, therefore, can trigger skin reactions.

### 8.2.3 Environmental exposure controls

#### Water

Do not discharge building material into groundwater or wastewater systems in larger quantities. An increase in pH value is possible through exposure. At a pH value above 9, ecotoxicological effects may occur. Water directed or drained off into the wastewater system or surface water should therefore not lead to such a relevant pH value. Wastewater and groundwater regulations must be observed.

#### Soil

Compliance with the German Federal Soil Protection Act and the German Federal Soil Protection and Contamination Ordinance. No special control measures required

## 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### General information

Physical state:	powder
Colour:	grey/white
Odour:	odourless

#### Important health, safety and environmental information

Parameter	Value
pH-Value (at 20 °C)	11,0-13,5
<b>Changes in physical state</b>	
Melting point	> 1250 °C
Initial boiling point and boiling range	n.a.
Flash point	n.a.
<b>Flammability</b>	
Solid	n.a.
Gas	n.a.
<b>Explosive properties</b>	
	not explosive
Lower explosion limits	n.a.
Upper explosion limits	n.a.
Ignition temperature	n.a.
Vapour pressure	n.a.
Density	2,75-3,2 g/cm <sup>3</sup>
Water solubility (at 20 °C)	0,1-1,5 g/L
Partition coefficient	n.a.
Viscosity, dynamic	n.a.
Viscosity, kinematic	n.a.
Evaporation rate	n.a.

### 9.2 Other information

Not applicable.

## 10. Stability and reactivity:

### 10.1 Reactivity

Dry mortars are hydraulic materials. When mixed with water, an intended reaction takes place. As a result, cement hardens and forms a solid mass, which does not react with its environment.

### 10.2. Chemical stability

Cement/binding agent is stable, as long as it is properly stored (see Section 7). It should be kept dry. Contact with incompatible materials should be avoided. Wet cement/binding agent is alkaline and incompatible with acids, ammonium salts, aluminum and other base metals. Here, hydrogen can be formed. Cement/binding agent dissolves in hydrofluoric acid, forming corrosive silicon tetrafluoride gas. Avoid contact with these incompatible materials.

With water, cement/binding agent forms calcium silicate hydrates, calcium aluminates hydrates and calcium hydroxide. The calcium silicates of the cement/binding agent may react with strongly oxidizing agents such as fluorides.

### 10.3. Possibility of hazardous reactions

Not applicable.

### 10.4. Conditions to avoid

Moisture during storage can lead to lumping and loss of product quality.

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### 10.5. Incompatible materials

As these are ready-mixed products, GANTREX mortars must not be mixed with other products or materials without first consulting the manufacturer. The quality of the product may be affected.  
Acids, ammonium salts, aluminum or other base metals.

### 10.6. Hazardous decomposition products

Cement/binding agent does not decompose into hazardous components.

## 11. Toxicological information:

### 11.1 Information on toxicological effects:

#### Acute toxicity

No data is available on the product itself.

Long term exposure to concentrations over the maximum occupational exposure limit can lead to health problems. Product dust may be irritating to eyes, skin and respiratory system. Risk of infection of the lung after prolonged inhalation of dust particles. These may irritate eyes, nose and throat. Dust causes irritation to the eyes, skin and mucous membranes and may lead to toxic lung oedemas. Swallowing large amounts can be detrimental to health. Ingestion causes irritation of upper respiratory system and gastrointestinal disturbance.

Toxicity after skin contact: LD50/dermal/rabbit: 2000 mg/kg (24 h) (4)

#### Irritation and corrosivity

The product causes irritation of eyes, skin and mucous membranes.

##### After eye contact:

Irritating to eyes. Resin particles, like other inert materials, are mechanically irritating to eyes. At high concentrations material causes severe inflammation of conjunctiva and cornea. May cause irreversible eye damage. Danger of blindness.

##### After skin contact:

Repeated or prolonged exposure can cause local skin irritation especially in skin folds or when wearing of tight clothing. May cause redness, skin irritation and/or dermatitis. In some cases, eczema can be formed after contact with wet cement. Literary reference (4, 11, 12)

#### Sensitizing effects

The eczema is triggered either by the pH value (irritative contact dermatitis) or by immunological reactions with water-soluble chromium (VI) compounds (allergic contact dermatitis).

Literary reference (1, 5, 13)

#### Severe effects after repeated or prolonged exposure

Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough. Repeated or continued skin contact can cause skin changes. This preparation is a skin irritant, and repeated contact can intensify the irritant effect. Repeated or prolonged contact causes sensitization, asthma and eczemas. Excessive exposure may aggravate preexisting asthma and other respiratory disorders (e.g. emphysema, bronchitis, reactive airways dysfunction syndrome).

#### Carcinogenic/mutagenic/toxic effects for reproduction

No data is available on the product itself. Literary reference (1, 14, 15, 16)

#### Empirical data on effects on humans

When mixed with water, the material may produce serious eye and skin damage in case of extended contact. Mechanical skin stress at the same time is able to intensify such effects.

## 12. Ecological information

**12.1 Toxicity:** Cement/binding agents are not considered harmful for the environment. Ecotoxicological studies of the effects of Portland cement on *Daphnia magna* (U.S. EPA, 1994a) [Ref.(6)] and on *Selenastrum Coli* (U.S.EPA, 1993) [Ref (7)] have shown only slight toxic effect. The LC50 and EC50 values could therefore not be determined. [Ref (8)]. Nor could any toxic effects on sediments be established [Ref (9)]. However, releasing large quantities of cement into water can lead to a rise in pH value and may thus be toxic for aquatic life in certain circumstances.

**12.2 Persistence and degradability:** Not applicable

**12.3 Bioaccumulative potential:** Not applicable

**12.4 Mobility in soil:** Not applicable

**12.5 Results of PBT/vPvB assessment** Not applicable

**12.6 Other adverse effects:** Not applicable

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13.

**14. Disposal considerations**

**13.1 Procedures for treatment of waste**

**Recommendation**

Cured material: dispose of as per official regulations. Do not release into surface water or drainage system.

Disposal of product residue:

Uncured material – collect up while dry, avoiding causing dust. Proceed in accordance with waste disposal legislation.

**Product waste code**

170101 Construction and demolition waste (incl. spoil from contaminated sites); concrete, bricks, tiles and ceramics; concrete.

**Product residue waste code**

101314 Waste from thermal processes; waste from manufacture of cement, lime and plaster and from articles made from these; concrete waste and concrete sludge.

**Contaminated packaging waste code**

150110 Packaging waste, absorbents, wipes, filter materials and protective clothing not otherwise specified; packaging (inc. separately collected municipal waste). Packaging containing residue of/ contaminated by dangerous substances is classified as hazardous waste.

**Disposal of unclean packaging and recommended cleaning agents**

Empty containers must be fully emptied as far as the latest technical standards allow, before being disposed of. Dispose of in accordance with local regulations. Recycle in the normal way.

**15. Transport information**

Cement/binding agents do not come under international hazardous materials regulations (IMDG, IATA, ADR/RID). No hazardous materials classification is therefore required.

<b>14.1 UN number:</b>	Not applicable
<b>14.2 UN proper shipping name:</b>	Not applicable
<b>14.3 Transport hazard class:</b>	Not applicable
<b>14.4 Packaging group:</b>	Not applicable
<b>14.5 Environmental hazard:</b>	Not applicable
<b>14.6 Special precautions for user:</b>	Not applicable
<b>14.7 Bulk transport in accordance with Annex II of MARPOL Convention 73/78 and the IBC Code</b>	Not applicable

**16. Regulatory information**

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

***EU Regulatory information***

No Substances of Very High Concern (SVHC) according REACH Article 57.

Observe: Directive 1907/2006 (REACH) ANNEX XVII, 47

In the scope of the "European Agreement on Workers Health Protection through the Good Handling and

Use of Crystalline Silica and Products containing it (NePSi)", cement manufacturers undertook to introduce so-called "good practices" for safe handling (<http://www.nepsi.eu/good-practice-guide.aspx>).

***EU Regulatory information***

- Water contaminating class (D): 1 - slightly water contaminating
- Status: WGK 1 (slightly hazardous to water)  
(self-classification in accordance with VwVwS of 17.05.1999)
- GISCODE ZP 1: cement-containing products, low in chromate
- Storage class according to TRGS 510: Storage class 13 (non-flammable solids)
- The amount of chromate was measured in accordance with TRGS 613.
- Technical Rules for Hazardous Substances 900 "Maximum Allowable Concentrations" (TRGS 900)
- Technical Rules for Hazardous Substances 402 "Determination and Evaluation of Hazards during Operations with Hazardous Substances" (TRGS 402)



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### Other information

TSCA (Toxic Substance Control Act):  
All ingredients of the mixtures appear on the TSCA (Toxic Substance Control Act) Inventory.

### 15.2 Chemical Safety Assessment

A chemical safety assessment for the materials in these mixes has not been carried out.

## 17. Other information

### 16.1 Indication of changes

New version according to Regulation (EU) No 453/2010.

### 16.2 Abbreviations and acronyms:

ADR/RID:	European Agreements on the transport of Dangerous goods by Road/Railway
BGR:	[German health & safety regulations]
CAS:	Chemical Abstracts Service
CLP:	Classification, Labelling & Packaging (EC Regulation n° 1272/2008)
EC50:	Half maximal effective concentration
ECHA:	European Chemicals Agency
EINECS:	European Inventory of Existing Commercial chemical Substances
EPA:	Type of high efficiency air filter
HEPA:	Type of high efficiency air filter
IATA:	International Air Transport Association
IMDG:	International agreement on the Maritime transport of Dangerous Goods
IUPAC:	International Union of Pure and Applied Chemistry
LC50:	Median lethal dose
MAC:	Maximum acceptable concentration
REACH:	Registration, Evaluation, Authorisation and Restriction of Chemicals (EC Regulation 1907/2006)
SDB:	[Germany: safety data sheet]
STOT:	Specific target organ toxicity
TRGS:	[Germany: technical regulations for hazardous substances]
UVCB:	Substances of Unknown or Variable composition, Complex reaction products or Biological materials
VCI:	[Germany: Chemical industries association]
vPvB:	Very persistent, very bio-accumulative
VvVwS:	[German administrative regulation regarding water pollutants]
n.a.	not applicable

### 16.3 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“, Ausgabe: Januar 2006 BArBI Heft 1/2006 S. 41-55 zuletzt geändert und ergänzt: GMBI 2014 S. 271-274 v. 2.4.2014 [Nr. 12]*.
- (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.

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- (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](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) *Exposure to thoracic dust, airway symptoms and lung function in cement production workers*; Nordby, K.-C., et al; *Eur Respir J*, 2011. 38(6).

**16.4 Methods for evaluating information for the purposes of classification, in accordance with CLP-Regulation (EC) 1272/2008:**

*(The data for hazardous ingredients were taken in each case from the supplier's latest safety data sheet)*

**16.5 Wording of R- und H- und EUH-phrases:**

H315 Causes skin irritation  
H318 Causes serious eye damage  
H317 May cause an allergic skin reaction.  
H335 May cause respiratory irritation  
EUR203 Contains chromium (VI). May produce an allergic reaction.

**16.6 Training advice:**

In addition to training programmes for employees on health, safety and the environment, it is up to firms to ensure that their employees read and understand the safety data sheet and can implement its requirements.

**16.7 Further details:**

All details given are based on our present knowledge and are designed to describe our product with regard to health & safety requirements. However, they are not intended to guarantee particular properties of the product. It is the responsibility of the user of our product to comply with existing laws, regulations and standards, including such as are not specified in this data sheet.

Modifications to the previous version are marked at side.

In the event of a new edition, the present version will no longer apply.

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**16.8 Process categories and descriptors**

For the professional user, process categories and descriptors according to ECHA Guidance R.12 (ECHA-2010-G-05) can be assigned (see table).

PROC	Identified uses - Use description	Professional/Industrial use of hydraulic binding agents and building materials
2	Use in closed, continuous process with occasional controlled exposure (e.g. sampling)	X
3	Use in closed batch process (formulation)	X
5	Mixing or blending in batch processes for formulation of mixtures and articles (multiple and/or significant contact)	X
7	Industrial spraying	X
8a	Transfer (charging/discharging) from/to vessels/large containers at non-dedicated facilities	X
8b	Transfer (charging/discharging) from/to vessels/large containers at dedicated facilities	X
9	Transfer into small containers (dedicated filling plant, including weighing)	X
10	Roller application or brushing	X
11	Non-industrial spraying	X
13	Treatment of articles by dipping and pouring	X
14	Production of mixtures or articles by tableting, compression, extrusion, pelletization	X
19	Hand-mixing with intimate contact and only personal protective equipment (PPE) available	X
22	Potentially closed processing operations with minerals/metals at elevated temperature industrial setting	X
26	Handling of solid inorganic substances at ambient temperature	X