



Suppliers of quality mortars, screeds and ready-mixed concrete

## Concrete, Mortar and Screed MSDS

### 1. Hazard Information

#### - Concrete:

Mixture of natural aggregates, cement and water. Other ingredients may include admixtures, ground granulated blast furnace slag (GGBS) and fly ash (PFA). Such additions are made to alter / improve the working characteristics of the material or to effect / enhance its properties once hardened.

#### - Mortar:

Mixture of natural aggregates, cement and water. Admixtures, GGBS, hydrated lime and / or pigments may be added.

#### - Screed:

Mixture of natural aggregates, cement and water. Admixtures, GGBS, hydrated lime and / or pigments may be added.

#### *i. Chemical Description:*

The principle constituents are calcium silicates, aluminates and sulfates. Small amounts of alkalis, lime and chlorides are also present. Whilst reducing agents are added to comply with the regulatory limit for chromium (VI) their effect decreases with time and hexavalent chromium salts may be present which give rise to a potentially hazardous solution when mixed with water. Additional constituents may also be present e.g. GGBS, PFA, Limestone, along with other minor chemical additives. The natural aggregates contain a combination of various materials, including silica.

#### *ii. Hazardous Ingredients:*

- a. The Lime, calcium silicates and alkalis within the cement are partially soluble and when mixed with water will give rise to a potentially hazardous alkaline solution.
- b. Hexavalent chromium salts in the cement are soluble and when mixed with water will give rise to a potentially hazardous reaction.
- c. Salts of organic acid within the air entraining agents are soluble and when mixed with water will contribute to the alkalinity of the solution.
- d. Airborne dust from the natural aggregate in dry concrete mixes may contain respirable silica. Long term prolonged exposure to high levels of respirable crystalline silica, which can arise from a failure to implement adequate control measures, can lead to silicosis and ultimately an increase of developing lung cancer.

### 2. Hazards Identification

- i. Wet concrete, mortar and screed are strong alkali. If this comes into contact with the eyes or skin it may cause serious burns and ulceration. The eyes are particularly vulnerable and damage will increase with contact time. Strong alkaline solutions in contact with the skin tend to damage the nerve endings first before damaging the skin, therefore chemical burns can develop without pain being felt at the time.
- ii. Concrete, mortar and screed mixes may until set, cause both irritant and allergic contact dermatitis: Irritant contact dermatitis is due to the combination of the wetness, alkalinity and abrasiveness on the constituent materials. Allergic contact dermatitis is caused mainly by the sensitivity of an individual's skin to hexavalent chromium salts.
- iii. Concrete, mortar and screed dust: Inhalation of silica particles in dust created by cutting set concrete, mortar, and screed or surface treatment of hardened concrete, mortar and screed containing high silica aggregates may cause respiratory damage. Long term prolonged exposure to high levels of respirable crystalline silica, which can arise from a failure to implement adequate control measures or wear the correct respiratory protection can lead to silicosis and ultimately lead to an increased risk of developing lung cancer.

### Emergency Action

#### 3. First Aid Measures for Wet Concrete, Mortar and Screed:

- i. Eye contact: Irrigate immediately with copious amounts of clean water. Seek immediate medical attention.
- ii. Skin Contact: Immediately wash with copious amounts of clean water. Clothing contaminated by wet cement, concrete, mortar and screed should be removed and washed thoroughly before use.
- iii. Ingestion: Wash out mouth and drink plenty of water. Do not induce vomiting. Seek medical attention if a large amount is swallowed.



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### 4. First Aid Measures for Concrete, Mortar and Screed Dust:

- i. Eye Contact: Irrigate immediately with copious amounts of clean water. Seek immediate medical attention.
- ii. Skin Contact: Wash the effected area thoroughly with soap and water before continuing. If irritation, pain or other skin conditions occur, seek medical advise.
- iii. Indigestion: Do not induce vomiting. Wash out mouth with clean water and give patient plenty of water to drink.
- iv. Inhalation: If irritation occurs, move to fresh air. If nose or airways become inflamed, seek medical attention.

### 5. Fire Fighting Measures:

- i. Concrete, mortar and screed are not flammables and will not facilitate combustion with other materials.

### Accidental Release Measures

### 6. Personal Precautions:

- i. Cleaning up: recover bulk spillage with out delay and, for wet mixes, while material is still in non-hardening state, using suction system or mechanical shovel. The product can be slurried but the addition of water but will keep subsequently set as hard material. Keep children away from clean up operation.

### Other Precautions

### 9. Storage and Handling:

- i. Storage: Ready to use mortar should be stored in covered tubs.
- ii. Handling:  
*Wet Concrete, mortar and screed:* Avoid skin and eye contact, The risks of dermatitis and burns are increased if the material is allowed to continue rubbing against the skin (e.g. inside boots, in gloves or through saturated clothing) Do not kneel or sit in the wet materials with out the correct personal protective clothing.

### i. Concrete, Mortar and Screed Dust:

The creation of dust from the cutting or surface treatment of hardened concrete, mortar and screed should be kept to a minimum, with work methods and engineering control measures being used to reduce exposure. It is also strongly advised to use respiratory protective equipment in such circumstances.

### 8. Exposure Controls/ Personal Protection

- i. Workplace limits (WEL's) of 10mg/m<sup>3</sup> total inhalable dust and 4mg/m<sup>3</sup> respirable dust ( 8 hour TWA) are listed in EH40 for calcium silicate, PFA and limestone. WEL's of 0.05mg/m<sup>3</sup> and 0.03mg/m<sup>3</sup> are listed for chromium (VI) compounds and respirable silica respectively (8 hour TWA)
- ii. Engineering Measures: Where reasonably practicable dust exposures should be controlled by engineering methods, such as local exhaust ventilation.
- iii. Personal Protective Equipment:
  - a. Respiratory Protection: Suitable respiratory protection (HSE approved standard) should be worn to that personal exposure is less than the work place exposure limit values.
  - b. Hand and Skin Protection: Protective clothing should be worn which ensures that concrete, mortar and screed does not come into contact with the skin. In some circumstances such as laying wet concrete, waterproof gloves, trousers and boots may be necessary. Also kneepads if kneeling down to finish a surface. Particular care should be taken to ensure wet concrete do not enter the boots and persons to not kneel on the wet concrete so as to bring the wet concrete into contact with the unprotected skin. Should wet concrete, mortar or screed get inside boots, gloves or other protective clothing, then this protective clothing should be immediately removed and the skin thoroughly washed as well as the protective clothing/ footwear.
  - c. Eye Protection: Dust proof goggles (HSE approved safety) should be worn whenever there is a risk of cement, concrete mortar or screed powder or any cement / water mixture entering the eye. Suitable protection is advisable where there is a risk of splashing.



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### Product Information

#### 9. Physical and Chemical Properties:

- i. Detailed properties vary according too:
  - a. The specific concrete, mortar and screed.
  - b. The ingredients added to affect the working characteristics of the material.
- ii. All mixes are: - Abrasive and Alkaline (typical pH10-14)

#### Physical Data:

Physical State	Particulate
Mean Particle Size	1-100 microns
Odor	N/A
pH	pH of Wet Concrete/Mortar 9-12
Viscosity	N/A
Freezing Point	N/A
Boiling Point	N/A
Melting Point	N/A
Flash Point	N/A (not flammable)
Explosive Properties	N/A
Typical Densities	Concrete 2000 – 2500kg/m <sup>3</sup> Mortar 1600 – 2200kg/m <sup>3</sup>
Dry Bulk Density	1100 – 1600kg/m <sup>3</sup>
Solubility	N/A

#### 10. Stability and Reactivity:

- i. Reacts with moisture to become an alkaline.

#### 11. Toxicological Information:

- i. Short Term Effects:
  - a. Eye Contact: Mild exposure can cause some soreness. Gross exposure or untreated mild exposure can lead to chemical burning and ulceration of the eye.
  - b. Skin (Short Term Exposure): May cause alkali burns; may cause acute allergic dermatitis in people sensitized to chromium compounds.
  - c. Skin (Chronic Long Term Exposure): May cause irritant contact dermatitis; may lead to sensitization of the skin to chromium compounds.
  - d. Ingestion: The swallowing of small amounts of any cement/ water mixture is unlikely to cause significant reaction. Large doses may result in irritation of the gastrointestinal tract.

- e. Inhalation of cement powder may cause inflammation of mucous membranes. Inhalation of large amounts of dust or dust containing respirable silica may cause progressive lung damage, leading to permanent disability and, in extreme cases, to premature death.
- ii. Chronic Effects: Skin exposure has been linked to allergic (chromium) dermatitis. Long term exposure to silica dust may cause silicosis and lead to an increase risk of lung cancer.

#### 12. Ecological Information

- i. Aquatic Toxicity Rating: LC50 aquatic toxicity is not determined. No data is available on the preparations themselves. When used as intended, no environmental impact is expected. If spillage occurs, do not allow material to enter drains, sewers or watercourses.
- ii. Biological Oxygen Demand (BOD)

#### 13. Disposal Considerations

- i. Not hazardous. Disposal subject to local authority's current requirements / regulations. Keep out of reach of children.

#### Further Information

#### 14. Transport Information

- i. Not hazardous. Classification of conveyance is not required.

#### 15. Regulatory Information

- i. Chemicals (hazard information and packaging for supply) regulations. Classification: irritant
- ii. Risk Phrases: May cause sensitization by skin contact, Risk of serious damage to eyes. Contact with wet cement, concrete mortar or screed may cause irritation, dermatitis or burns. Contact between cement powder and bodily fluids may also cause skin and respiratory irritation, dermatitis or burns. Contains chromium may cause allergic reaction.



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- iii. Safety Phrases: Avoid eye and skin contact by wearing suitable eye protection, clothing and gloves. Avoid breathing dust. Keep out of reach of children. On contact with eyes or skin rinse immediately with plenty of water. Seek medical attention after eye contact.

### 16. Legislation & Other Information

- i. CONIAC Health Information Sheet No.26 (Cement)
- ii. Health and Safety at Work Act 1974
- iii. Control of Substances Hazardous to Health Regulations (COSHH) 2002
- iv. Construction Design and Management Regulation 1994
- v. Environmental Protection Act 1990
- vi. HSE Guidance Note EH 40 (Workplace Exposure Limits)
- vii. Manual Handling Operation Regulations 1992

Datasheet prepared in accordance with Safety Data Sheets directed (91/155/EEC, as amended by directions 93/122/EC and 2001/58/EC)

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