



Material Safety Datasheet

READY-MIXED CONCRETE, MORTAR & SCREED

It is important that you, or any persons working for you or to whom you have supplied ready-mixed concrete, mortar or screed, become familiar with the information given on both pages of this datasheet before handling, using or disposing of the product(s).

Ready-mixed concrete, mortar & screed

1. Identification of substance/preparation and company

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Product: Ready-mixed Concrete
Ready-mixed Mortar
Ready-mixed Screed
Dry Silo Mortar
Bagged Ready-mixed Concrete (addition of water required)
Bagged Ready-mixed Mortar (addition of water required)

Revision date: May 2006

Hazard information

2. Composition/information on ingredients

Concrete:
Mixture of natural aggregates, cement and water. Other ingredients may include admixtures, Fly Ash and Ground Granulated Blast-furnace Slag (GGBS). Such additions are made to alter/improve the working characteristics of the material or to affect/enhance its properties once hardened.

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

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

Supaflo:
Mixture of natural aggregates, calcium sulphate and water.

2.1 Chemical description:

The principal constituents of cement are calcium silicates, aluminates, and sulphates. 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. fly ash, limestone, clay and granulated blast furnace slag along with other minor chemical additives. The natural aggregates in concrete contain a combination of various minerals, including silica.

2.2 Hazardous ingredients:

- 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.
- Hexavalent chromium salts in the cement are soluble and when mixed with water, will give rise to a potentially hazardous solution.
- Salts of organic acid within the air entraining agents are soluble and when mixed with water will contribute to the alkalinity of the solution.
- Airborne dust from the natural aggregates 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 increased risk of developing lung cancer.

3. Hazards identification

- Wet concrete, mortar and screed are strong alkalis. 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.
- Concrete, mortar and screed mixes may until set cause both irritant and allergic contact dermatitis:
 - Irritant contact dermatitis is due to a combination of the wetness, alkalinity and abrasiveness of the constituent materials
 - Allergic contact dermatitis is caused mainly by the sensitivity of an individual's skin to hexavalent chromium salts

3.3 Concrete, mortar and screed dust:

Inhalation of silica particles in dust created by dry-mix bagged products, cutting set concrete or surface treatment of hardened concrete 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 an increased risk of developing lung cancer.

Emergency action

4. First aid measures

Wet concrete, mortar & screed:

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

Concrete, Mortar and Screed dust:

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

WARNING

WET CEMENTITIOUS PRODUCTS such as concrete, mortar and screed MAY CAUSE SERIOUS BURNS in contact with eyes or skin. You MUST wear the appropriate protective clothing at all times.

5. Fire fighting measures

Concrete, Mortar and Screed are not flammable and will not facilitate combustion with other materials.

6. Accidental release measures

- 6.1 Personal Precautions (See 8.3.)
- 6.2 Cleaning Up:
Recover bulk spillage without delay and, for wet mixes, while material is still in non-hardened (plastic) state, using suction system or mechanical shovel. The product can be slurried by the addition of water but will subsequently set as a hard material. Keep children away from clean up operation.
- 6.3 Environmental Measures:
Prevent from entering drains, sewers or water courses.

Precautions

7. Storage & handling

- 7.1 Storage:
Dry mix concrete and mortar bags should be stacked in a safe and stable manner, away from any moisture.
- 7.2 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 on the wet materials without the correct personal protective clothing, (see 8.3).
 - Concrete, Mortar and Screed dust:
The creation of dust from the cutting or surface treatment of hardened concrete 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.
 - Bagged dry-mix concrete and mortar:
When handling bags take care when lifting, due regard should be paid to the risks outlined in the Manual Handling Operations Regulations 1992. Some bags may have a small amount of cement on the outer surface. Appropriate personal protective clothing (see 8.3) should therefore be used whilst handling.

8. Exposure controls/personal protection

- 8.1 Workplace Exposure Limits:
Workplace Exposure Limits (WELs) of 10mg/m³ total inhalable dust and 4mg/m³ respirable dust (8 hour TWA) are listed in EH40 for calcium silicate, pulverised fuel ash and limestone. WELs of 0.05mg/m³ and 0.3mg/m³ are listed for Chromium (VI) compounds and respirable silica respectively (8 hour TWA). It should however be noted that the Health and Safety Executive stated in their Chemical Hazard Alert Notice on Respirable Crystalline Silica (CHAN 35 published April 2003) that it should be reasonably practicable for all industry sectors to control respirable crystalline silica exposure to 0.1mg/m³ (8 hour TWA) or below and have indicated that they intend to introduce this as a WEL at some stage in 2006.
- 8.2 Engineering Measures:
Where reasonably practicable dust exposures should be controlled by engineering methods, such as local exhaust ventilation.
- 8.3 Personal Protective Equipment:
- a. Respiratory Protection:
Suitable respiratory protection (HSE approved standard) should be worn to ensure that personal exposure is less than the workplace exposure limit values.
- b. Hand and Skin Protection:
Protective clothing should be worn which ensures that concrete, mortar or screed, does not come into contact with the skin. In some circumstances such as when laying concrete, waterproof gloves, waterproof trousers and boots may be necessary, also knee pads if kneeling down to finish a surface. Particular care should be taken to ensure that wet concrete does not enter the boots and persons do not kneel on the wet concrete so as to bring the wet concrete into contact with 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 standard) should be worn whenever there is a risk of cement powder or any cement/water mixture entering the eye. Suitable protection is advisable where there is a risk of material splashing.

Product information

9. Physical & chemical properties

Detailed properties vary according to:

- The specific concrete, mortar or screed and
- The ingredients added to affect the working characteristics of the material

All mixes are:

- Abrasive
- Alkaline (typically pH10-14)

9.1 Physical Data:

Physical state	Particulate	
Mean particle size	1 – 100 microns (concrete/mortar)	
Odour	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 ³	Mortar 1800 – 2200kg/m ³
Dry Bulk Density	1100 - 1600kg/m ³	
Solubility	N/A	

10. Stability & reactivity

Reacts with moisture to become alkaline.

11. Toxicological information

- 11.1 Short Term Effects:
- Eye Contact:
Mild exposure can cause soreness. Gross exposures or untreated mild exposures can lead to chemical burning and ulceration of the eye.
 - Skin:
(Short-term exposure) May cause alkali burns; may cause acute allergic dermatitis in people sensitised to chromium compounds.
(Chronic long-term exposure) May cause irritant contact dermatitis; may lead to sensitisation of the skin to chromium compounds.
 - Ingestion:
The swallowing of small amounts of any cement/water mixtures is unlikely to cause significant reaction. Large doses may result in irritation to the gastro intestinal tract.
 - Inhalation:
Cement powder may cause inflammation of mucous membranes. Inhalation of large quantities of dust or dust containing respirable silica (generated by cutting, drilling, etc.) may cause progressive lung damage, leading to permanent disability and, in extreme cases, to premature death.
- 11.2 Chronic Effects:
Skin exposure has been linked to allergic (chromium) dermatitis. Allergic dermatitis more commonly arises through contact with cement/water mixtures than dry cement or dry pre-mixed concrete or mortars. Long term exposure to silica dust may cause silicosis and lead to an increased risk of developing lung cancer.

12. Ecological information

- 12.1 Aquatic Toxicity Rating:
LC50 aquatic toxicity rating not determined. No data is available on the preparations themselves. When used as intended, no environmental impact is anticipated. If spillage occurs, do not allow material to enter drains, sewers or water courses.

- 12.2 Biological Oxygen Demand (BOD):
Not applicable

13. Disposal considerations

Not hazardous. However, disposal subject to local authority current requirements / regulations. Keep out of reach of children.

Product information

14. Transport information

Not hazardous. Classification for conveyance – not required.

15. Regulatory information

15.1 Chemicals (Hazard Information and Packaging for Supply) Regulations.

Classification: Irritant.

15.2 Risk/safety phrases:

Risk Phrases:

- May cause sensitisation by skin contact
- Risk of serious damage to eyes
- Contact with wet cement, mortar or screed may cause irritation, dermatitis or burns
- Contact between cement powder and bodily fluids (e.g. sweat and eye fluid) may also cause skin and respiratory irritation, dermatitis or burns
- Contains Chromium (VI) may cause allergic reaction

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 clean water. Seek medical advice after eye contact

16. Legislation & other information

- CONIAC Health Hazard Information Sheet No 26 (CEMENT)
- Health & Safety at Work, etc. Act 1974
- Consumer Protection Act 1987
- Control of Substances Hazardous to Health Regulations (COSHH) 2002
- Control of Substances Hazardous to Health (Amendment) Regulations 2004
- Construction (Design & Management) Regulations 1994
- Environmental Protection Act 1990
- HSE Guidance Note EH40 (Workplace Exposure Limits).
- Any authorised manual on First Aid by St.John's/St.Andrews/ Red Cross
- Manual Handling Operations Regulations 1992 (as amended)

Data Sheet prepared in accordance with the Safety Data Sheets Directive (91/155/EEC, as amended by Directives 93/122/EC and 2001/58/EC)

Guidance references

Available from HMSO, HSE area offices, or local authority Environmental Health Departments:

- EH40/: Workplace Exposure Limits
- A step-by-step guide to COSHH Assessment (HS[G]97)

IMPORTANT NOTES

The purpose of this datasheet is to provide Health, Safety and Environmental guidance on the safe handling, use and disposal of ready-mixed Concrete, Mortar and Screed supplied by subsidiary or affiliate companies of CEMEX in the United Kingdom. The information contained in this datasheet is correct at the date of, and applies only in relation to, the supply of material referred to in the delivery docket to which this datasheet is attached and forms part.

This datasheet should alert purchasers and/or users to the usual hazards in handling the supplied material when using it within the ordinary range of uses for which such material is normally supplied. If you have purchased or arranged the supply on behalf of a third party who will work with the material supplied it is your duty to pass this information on to them BEFORE such work commences.

For the avoidance of doubt the datasheet DOES NOT constitute the user's own assessment of workplace risk as may be required by other safety legislation and nothing herein shall be construed or relied upon as relieving the purchaser, user or any intermediate supplier or third party from any statutory or other legal duty which may apply to them or from taking care or precautions to protect themselves or others to whom they owe a duty of care.

The datasheet should not be relied upon for any other purpose including without limitation any technical or design purpose, nor relied upon in the use or handling of any other product whether supplied by CEMEX or not. Reliance placed on any part or all of the information contained in this datasheet which goes beyond the purpose set out above is entirely at the user's own risk.

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