



Health and Safety. Cement and Cement Based Products

1. Identification of Substance

Cement is an odourless white to grey powder insoluble in water which may be blended with aggregates. When water is added it becomes a concrete or mortar for construction applications. This data sheet applies to the following cement based products;

Coarse Concrete	40N Concrete
Instant Concrete	Multi Purpose Concrete
Portland Cement	Post Fix
Rapid Set Concrete	Shed Base
Quickset Mortar	Bricklaying Mortar
Sand Cement Mortar	Fast Set Post Fix
Dry Silo Mortar	

Company

Hanson Packed Products
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2. Composition

Chemical Description (Cement)

The principal constituents of cements are calcium silicates, aluminates, ferro-aluminates and sulfates. Small amounts of alkalis, lime and chlorides are also present together with trace amounts of chromium compounds. Additional constituents may also be present eg, pulverised fuel ash, limestone, clay and granulated blast furnace slag.

Hazardous Ingredients (cement)

- 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 these cements are soluble and when mixed with water, will give rise to a potentially hazardous solution.

3. Hazards Identification

When cement is mixed with water such as when making concrete or mortar, or when the cement becomes damp, a strong alkaline solution is produced. 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.

Cement mortar and concrete 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.

4. First Aid Measures

4.1 Eye Contact: Wash eyes immediately with plenty of water for at least 15 minutes and seek medical advice without delay.

4.2 Skin Contact: Wash the affected area thoroughly with soap and water before continuing. If irritation, pain or other skin trouble occurs, seek medical advice. Clothing contaminated by wet cement, concrete or mortar should be removed and washed thoroughly before use.

4.3 Ingestion: Do not induce vomiting. Move to fresh air, wash out mouth with water and give patient plenty of water to drink.

4.4 Inhalation: If irritation occurs, move to fresh air. If nose or airways become inflamed seek medical advice.

5. Fire Fighting Measures

5.1 Cements are not flammable and will not facilitate combustion with other materials.

6. Accidental Release Measures

6.1 Personal Protection: See 8.3

6.2 Methods of Cleaning: Recover the spillage in a dry state if possible. Minimise generation of dust. The product can be slurred by the addition of water but will subsequently set as a hard material. Keep children away from clean up operation.

7. Handling and Storage

7.1 Storage: Bags should be stacked in a safe and stable manner.

7.2 Handling: When handling bags of product, 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 Occupational Exposure Standard (OES)

OES 8hr Time weighted average (TWA)

10mg/m³ total inhalable dust

5mg/m³ respirable dust

8.2 Engineering Control Measures: Where reasonably practicable dust exposures should be controlled by engineering methods.

8.3 Personal Protection:

a) Respiratory Protection - suitable respiratory protection should be worn to ensure that personal exposure is less than the OES.

b) Hand Skin Protection – Protective clothing should be worn which ensures that cement, or any cement/water mixture, e.g. concrete or mortar, does not come into contact with the skin. In some circumstances such as when

laying concrete, or lime based products, waterproof gloves, waterproof trousers and Wellingtons may be necessary. Particular care should be taken to ensure that wet concrete or lime based product does not enter the boots and persons so not kneel on the wet concrete or lime based products so as to bring the wet concrete into contact with unprotected skin. Should wet mortar, concrete or lime based product 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 should be worn whenever there is a risk of cement powder or any cement/water mixture entering the eye.

9. Physical & Chemical Properties

9.1 Physical Data

Physical State	Particulate
Mean Particle size	5-30 micron
Odour	N/A
pH	pH of wet cement 12-14
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 (not explosive)
Density	2800-3200kg/m ³
Solubility	N/A

9.2 Chemical Compounds

Mainly a mixture of:

- 3 CaO – SiO₂
- 2 CaO – SiO₂
- 3 CaO – Al₂O₃
- 4 CaO – Al₂O₃ – Fe₂O₃
- CaSO₄

Contains less than 1% of crystalline silica.

10. Stability and Reactivity

Conditions contributing to chemical instability: None

Hazardous decomposition products: None

Special Precautions: None

11. Toxicological Information

11.1 Short Term Effects

On eyes: Cement/Lime is a severe eye irritant. Mild exposures can cause soreness. Gross exposures or untreated mild exposures can lead to chemical burning and ulceration of the eye.

On skin: Cement/lime powder or any cement/water/lime mixture may cause irritant dermatitis, allergic (chromium) dermatitis, and/or burns.

By inhalation: Cement powder may cause inflammation of mucous membranes.

By Ingestion: the swallowing of small amounts of cement/lime or any cement/water/lime mixture is unlikely to cause any significant reaction. Larger doses may result in irritation to the gastro intestinal tract.

11.2 Chronic: High repeated exposures in excess of the OES have been linked with rhinitis and coughing. Skin

exposure has been linked to allergic (chromium) dermatitis. Allergic dermatitis more commonly arises through contact with cement/water mixtures than dry cement.

12. Ecological Information

12.1 Aquatic Toxicity Rating

LC50 aquatic toxicity rating not determined. The addition of cements to water will, however, cause the pH to rise and may therefore be toxic to aquatic life in some circumstances.

12.2 Biological Oxygen Demand

Not Applicable.

13. Disposal Considerations

Dispose of empty bags or surplus cement based products at a licensed landfill site. Keep out of the reach of children.

14. Transport Information

Classification for conveyance not required.

15. Regulatory Information

16.1 Chemicals (Hazard Information and Packaging) Regulations 1993

Classification – Irritant

16.2 Risk/Safety Phrases.

Risk Phrases:

- Contact with wet cement, wet concrete, wet mortar or lime based product may cause irritation, dermatitis or burns.
- Contact between cement/lime powder and body fluids (e.g. sweat and eye fluids) may also cause irritation, dermatitis or burns.
- There is a risk of serious damage to the eye.

Safety Phrases:

- Wear suitable protective clothing, gloves and eye/face protection.
- In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice.
- After contact with skin, wash immediately with plenty of clean water
- Keep out of reach of children

16. Other Information

- Health and Safety at Work etc Act 1974
- COSHH 1994

Our safety information is based on the knowledge currently available to us. It is intended to describe the product in respect of safety requirements only and customers are urged to ensure that the product is entirely suitable for their own purposes.

If the product is to be used by a third party at work, it is the duty of the initial recipient to ensure that he third party is supplied with the data given above. Users should undertake their own risk assessment or work place risks as required by Health and Safety legislation.