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Health and Safety Information – Blue Circle Portland Cements

This datasheet provides the information required by the Chemicals (Hazard Information and Packaging) Regulations.



IRRITANT



HEALTH & SAFETY INFORMATION BLUE CIRCLE PORTLAND CEMENTS

Summer 2005

1. Identification of Substance

An odourless white to grey powder mainly insoluble in water. When water is added it becomes a binder for construction applications. This datasheet applies to the following cements

- Mastercrete Original Portland cement
- Masonry cement
- Extra Rapid cement
- Blue Circle Cement
- Blue Circle Portland limestone cement
- Ferrocrete rapid-hardening Portland cement
- Sulfacrete sulfate-resisting Portland cement
- Snowcrete white Portland cement
- Phoenix Portland fly ash cement
- Microcem superfine Portland cement.

2. Supplier/Manufacturer

Lafarge Cement United Kingdom
Manor Court
Chilton OX11 0RN
Technical helpline: 0870 609 0011

3. Composition/Information on Ingredients

3.1. Chemical Description

The principal constituents of these 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 pulverized-fuel ash, limestone, and granulated blastfurnace slag. CAS: 65997-15-1.

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

4. 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.

5. First Aid Measures

Eye Contact

Wash eyes immediately with clean water for at least 15 minutes and seek medical advice without delay.

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.

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.

6. Fire Fighting Measures

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

7. Accidental Release Measures

7.1. Personal Precautions

(See 9.3. overleaf)

7.2. Method of Cleaning

Recover the spillage in a dry state if possible. Minimise generation of airborne dust. 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.

8. Storage and Handling

8.1. Storage

Bags should be stacked in a safe and stable manner.

8.2. Handling

When handling cement bags due regard should be paid to the risks outlined in the Manual Handling Operations Regulations. Some bags may have a small amount of cement on the outer surface. Appropriate personal protective clothing (see 9.3) should therefore be used whilst handling.

8.3. Control of Hexavalent Chromium

From 17 January 2005, those cements which naturally contain more than 2 ppm of soluble hexavalent chromium (chromium (VI)) by dry weight of cement, will be treated with a chemical reducing agent (such as ferrous sulfate) that maintains the level of hexavalent chromium in the cement to below 2 ppm by dry weight of cement. The effectiveness of the reducing agent reduces with time, therefore cement bags and/or delivery documents will contain information on the period of time ('shelf life') for which the manufacturer has established that the reducing agent will continue to limit the level of hexavalent chromium to less than 2 ppm by dry weight of cement. They will also indicate the appropriate storage conditions for maintaining the effectiveness of the reducing agent.

If cements are incorrectly stored, or used after the end of the declared 'shelf life', the level of hexavalent chromium may rise above 2 ppm by dry weight of cement, with a consequent increase in the potential risk of allergic contact dermatitis.

9. Exposure Controls

9.1. Occupational Exposure Standard (OES)

OES 8hr Time Weighted Average (TWA)

Total inhalable dust 10mg/m³ 8hr TWA

Respirable dust 4mg/m³ 8hr TWA

9.2. Engineering Control Measures

Where reasonably practicable, dust exposures should be controlled by engineering methods.

9.3. Recommended Protective Equipment

Respiratory Protection

Suitable respiratory protection should be worn to ensure that personal exposure is less than the OES.

Hand and Skin Protection

Protective clothing should be worn which ensures that cement, or any cement/water mixture eg concrete or mortar, does not come into contact with the skin. In some circumstances such as when laying concrete, waterproof trousers and wellingtons may be necessary.

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 mortar or wet concrete 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.

Eye Protection

Dust-proof goggles should be worn wherever there is a risk of cement powder or any cement/water mixtures entering the eye.

10. Physical/Chemical Properties

10.1. Physical Data

Physical state	Particulate
Mean particle size	5–30 micron
Odour	Not applicable (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	Not flammable
Explosive properties	Not explosive
Density	2800–3200 kg/m ³
Solubility	N/A

10.2. Chemical Compounds

Mainly a mixture of: 3CaO.SiO₂, 2CaO.SiO₂, 3 CaO.Al₂O₃, 4 CaO.Al₂O₃, Fe₂O₃, CaSO₄.

Contains less than 1% crystalline silica.

11. Stability and Reactivity

Conditions contributing to chemical instability: None.

Hazardous decomposition products: None.

Special precautions: None.

12 Toxicological Information

12.1. Short Term Effects

Eye Contact

Cement 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.

Skin

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

Ingestion

The swallowing of small amounts of cement or any cement/water mixtures is unlikely to cause any significant reaction. Larger doses may result in irritation to the gastro intestinal tract.

Inhalation

Cement powder may cause inflammation of mucous membranes.

12.2. Chronic Effects

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.

13. Ecological Information

13.1. 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.

13.2. Biological Oxygen Demand (BOD)

Not applicable.

14. Disposal Considerations

Dispose of empty bags or surplus cement to a place authorised to accept builder's waste.

Keep out of the reach of children.

15. Transport Information

Classification for conveyance: Not required.

16. Regulatory Information

16.1. Chemicals (Hazard Information & Packaging) Regulations

Classification: Irritant.

16.2. Risk Phrases

- Contains chromium (VI). May produce an allergic reaction.
- Risk of serious damage to eyes.
- Contact with wet cement, wet concrete or wet mortar may cause irritation, dermatitis or burns.
- Contact between cement powder and body fluids (eg sweat and eye fluid) may also cause skin and respiratory irritation, dermatitis or burns.

16.3. 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.

17. Legislation and Other Information

- CONIAC Health Hazard Information Sheet No 26, Cement.
- Health & Safety at Work Act 1974.
- Control of Substances Hazardous to Health (Regulations).
- Portland cement dust – Criteria document for an occupational exposure limit, June 1994, ISBN 07176 – 0763-1.
- HSE Guidance Note EH26 Occupational Skin Diseases – Health and Safety Precautions, HMSO 1981.
- HSE Guidance Note EH40 Occupational Exposure Limits.
- Any authorised manual on First Aid by St. Johns/St. Andrews/Red Cross.
- Manual Handling Operations Regulations 1992.
- Environmental Protection Act.



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