

MATERIAL SAFETY DATA SHEET

Cement, Concrete and Mortar

Rugby™

The Professionals' Choice

1. Identification of substance/preparation and company

Company:
RMC Packed Products Limited
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Products:

Cement - Rugby Portland Cement, Rugby Extra Special, Rugby Masonry, Rugby Fast Set, Rugby Rapid Hardening, Rugby Sulfate-Resisting, Rugby White and Rugby Rapid Set Cement.

Concrete - Rugby General Purpose Concrete, Rugby Post Mix, Rugby Path Mix, Rugby Coarse and Rugby Fine Concrete.

Mortar - Rugby General Purpose Mortar, Rugby Bricklaying & Repointing Mortar and Rugby Repair Mortars.

Issue Date: July 2003.

Hazard Information

2. Composition/Information on Ingredients

Cement - An odourless white to grey powder insoluble in water. When water is added it becomes a binder for construction applications.

Concrete - An odourless mixture of cement and natural aggregates (gravel and sand). Supplied dry and pre-mixed.

Mortar - An odourless mixture of cement and natural aggregates (sand). Supplied dry and pre-mixed.

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 together with trace amounts of chromium compounds. Additional constituents may also be present e.g. Pulverised fuel ash, limestone, clay and granulated blast furnace slag. Other minor chemical additives may also be present. The natural aggregates in concrete/mortar 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 failure to implement adequate control

measures, can lead to silicosis and ultimately an increased risk of developing lung cancer.

3. Hazards Identification

- When cement is mixed with water such as when making concrete or mortar, or when the cement becomes damp from contact with sweat or tears, 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.

Emergency Action

4. First Aid Measures

- Eye Contact**
Wash eyes immediately with plenty of 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 conditions occur, 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.
- Fire Fighting Measures**
Cement, Concrete and Mortar are not flammable and will not facilitate combustion with other materials.
- Accidental Release Measures**

- Personal Precautions (See 8.3.)**

6.2 Cleaning Up

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.

6.3 Environmental Measures

Prevent from entering drains, sewers or water courses.

Precautions

7. Storage and Handling

7.1 Storage

Bags should be stacked in a safe and stable manner, away from any moisture.

7.2 Handling

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 Occupational Exposure Limits

Occupational Exposure Standard (OES) values 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. Maximum exposure limits of 0.05mg/m³ and 0.3mg/m³ are listed for Chromium (IV) compounds and respirable silica respectively (8 hour TWA). It should however be noted that the Health and Safety Executive have stated in their Chemical Hazard Alert Notice on Respirable Crystalline Silica (CHAN 35 published April 2003) that it should now be reasonably practicable for all industry sectors to control respirable crystalline silica exposure to 0.1mg/m³ (8 hour TWA) or below.

8.2 Engineering Measures

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

8.3 Personal Protective Equipment

- Respiratory Protection
Suitable respiratory protection should be worn to ensure that personal exposure is less than the exposure limit values. Always ensure good ventilation.

WARNING

Wet cement, concrete or mortar may cause alkali burns if in direct contact with skin. You MUST wear the appropriate protective clothing at all times when working with cement, concrete or mortar.



Packed Products

- b. **Hand and 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, waterproof gloves, 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.
- 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.

Product Information

9. Physical/Chemical Properties

Detailed properties will vary according to:

- the specific cement, concrete or mortar.
- the ingredients added to affect the working characteristics of the material.

9.1 Physical Data

Physical State	Particulate
Mean particle size	5-30 micron (Cement) 1-100 microns (Concrete/Mortar)
Odour	N/A
pH	pH of wet cement 12-14 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
Density	2800-3200kg/m ³ (Cement)
Dry Bulk Density	1100 - 1600kg/m ³
Solubility	N/A

9.2 Chemical Compounds - Cement

Mainly a mixture of:

3CaO - SiO ₂
2CaO - SiO ₂
3CaO - Al ₂ O ₃
4CaO - Al ₂ O ₃ - Fe ₂ O ₃

Contains less than 1% crystalline Silica.

10. Stability and Reactivity

Conditions contributing to chemical instability: none.
Hazardous decomposition products: none
Special precautions: none.
Reacts with moisture to become alkaline.

11. Toxicological Information

11.1 Short Term Effects

- a. **Eye Contact**
Cement is a severe eye irritant. Mild exposure can cause soreness. Gross exposures or untreated mild exposures can lead to chemical burning and ulceration of the eye.
- b. **Skin**
Cement powder or any cement/water mixture may cause irritant contact dermatitis, allergic (chromium) dermatitis, and/or burns.

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

- d. **Inhalation**
Cement powder may cause inflammation of mucous membranes.

11.2 Chronic Effects

High repeated exposures in excess of the OES have been linked with thinitis 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 or dry pre-mixed concrete or mortars.

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 (BOD)

Not applicable

13. Disposal Considerations

Dispose of empty bags or surplus cement to a place authorised to accept builders waste. Keep out of reach of children.

Additional Information

14. Transport Information

Classification for conveyance - not required.

15. Regulatory Information

15.1 Chemicals (Hazardous Information & Packaging for Supply) Regulations 2002 Classification - Irritant (+hazard symbol)

Danger Classification	Phrase
R38	Irritating to the skin
R41	Risk of serious damage to the eyes
R43	May cause sensitisation
S24	Avoid contact with skin
S25	Avoid contact with eyes
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

15.2 Risk/Safety Phrases

- Risk Phrases
- May cause sensitisation by skin contact
 - 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 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 and Other Information

- CONIAC Health Hazard Information Sheet No 26 (CEMENT)
- Health & Safety at work etc. Act 1974.
- Control of Substances Hazardous to Health Regulations (COSHH) 2002
- PORTLAND CEMENT DUST - criteria document for an occupation exposure limit. June 1994 (ISBN 07176-0763-1)
- HSE Guidance Note EH40 (Occupational Exposure Limits)
- Any authorised manual on First Aid by St.John's/St. Andrews/Red Cross
- Manual Handling Operations Regulations
- Environmental Protection Act 1990

Data Sheet prepared in accordance with directive 91/155/EEC.

Guidance references

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

- EH40/2002: Occupational Exposure Limits
- A step by step Guide to COSHH assessments (HS[G]97)

Important Notes:

Data and advice in this Material Safety Data Sheet is provided to alert all purchasers and users to the possible hazards of use when the material is used as intended. The information should enable them to take the necessary precautions to protect the health and safety of personnel.

This Data Sheet does NOT constitute the user's own assessment of workplace risk as required by other safety legislation. If purchasing on behalf of a third party who will work with the material, it is your statutory duty to pass on this information to them BEFORE such work begins.

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