Readerfast & Readerfast A

READER
CEMENT PRODUCTS

Readerfast and Readerfast A is a khaki/buff coloured calcium sulfoaluminate for use in high-performance cement systems.

When used with a suitable source of sulphate and lime, Readerfast reacts to produce a composite cement combining the properties of rapid setting, high early strength development, good late strength, increased resistance to sulfate attack, and depending on the mix proportions, either shrinkage compensation or positive expansion.

The calcium sulphate content is invariably provided in the form of ground synthetic anhydrite and the lime is present in the Portland cement component.

INSTRUCTIONS FOR USE

Readerfast is suitable for use in a wide range of cementbased applications where enhanced performance characteristics are required, including grouting, repair work and floor screeds.

Readerfast A is a pre-mix of Readerfast and synthetic anhydrite for direct addition to Portland cement, designed to attain rapid set, high early strength and optimum shrinkage compensation. A typical mix, gauged by weight, is 2 parts Portland cement: 1 part Readerfast A. Setting is rapid, typically 5 -10 minutes depending on the water demand of aggregates used. The set may be adjusted or controlled by the addition of retarders and accelerators.

For cold weather working at temperatures below 5 °C, it is recommended that 1 - 2 % by weight hydrated lime on total cement be incorporated into the mix. The initial reaction of the mix commences when the free lime from the Portland cement goes into solution and reacts with the calcium sulfoaluminate. At reduced temperatures the rate of solubility of hydrated lime exceeds that from Portland cement.

The Readerfast range gives controlled set, enhanced strengths, shrinkage compensation/ expansion and sulfate resistance. Uses include any cement based products needing these properties – for example:

- Grouts
- Patching compounds
- Floor screeds
- Tile adhesive and grouting
- Sprayed products
- Mortars and concrete

AVAILABILITY

Readerfast and Readerfast A are available in 25kg bags, 1 tonne bags or bulk. Other Readerfast systems can be produced to meet user's specific needs.

PACKAGING & STORAGE

Readerfast and Readerfast A are supplied in 25Kg bags, palletised and shrink wrapped. Palletised material should be stored clear of the ground, sheeted and preferably under cover. The pallets should not be stacked more than two high with the material being used on a first in, first out basis.

The shelf life of all products is 8 weeks if supplied in paper sacks and stored correctly, and 12 months if stored in plastic sacks.

HEALTH & SAFETY

Contact between cement powder and body fluids (eg sweat and eye fluids) may cause irritation, dermatitis or burns. Cement is classified as an irritant under the Chemicals (Hazard Information and Packaging) Regulations. (Information overleaf)

High strength and optimum performance where durability is crucial




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Issued December 2017 – Replaces all previous versions

Danger

Causes serious eye damage
Causes skin irritation
May cause allergic skin reaction
May cause respiratory irritation

Readerfast & Readerfast A

1. Identification of Substance

An odourless khaki powder insoluble in water. When water is added, Readerfast A in conjunction with Portland cement becomes a binder for construction applications.

2. Supplier/Manufacturer

Kirkby Lane, Pinxton, Nottinghamshire,
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3. Composition/Information on Ingredients

3.1 Chemical description

The principle constituents are calcium sulfoaluminate CAS: 12004-14-7, calcium aluminate CAS: 12042-68- 1, di calcium aluminate silicate CAS: 12252-33-4 and calcium sulphate CAS: 14798-04-0. Minor amounts of tetra alumino ferrite, dodeca calcium hepta aluminate, calcium titanate and lime together with trace amounts of alkalis, chlorides and chromium compounds.

3.2 Hazardous Ingredients

a) The lime and alkalis are partially soluble and when mixed with water will give rise to potentially hazardous alkaline solution.

b) Hexavalent chromium salts are soluble and when mixed with water will give a rise to 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 or 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 sensitivity of an individuals 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 and will not facilitate combustion with other materials.

7. Accidental Release Measures

7.1 Personal Precautions

See 9.3 in next column.

7.2 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.

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 below) should therefore be used whilst handing.

9. Exposure Controls

9.1 Occupational Exposure Standard (OES)

OES 8hr Time Weighted Average (TWA) Total inhalable dust 10 mg/m^3 8hr TWA Respirable dust4 mg/m^3 8hr TWA

9.2 Engineering Measures

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

9.3 Personal Protective Equipment Respiratory Protection

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

Hand and Skin Contact

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 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/water mixtures entering the eye.

10. Physical/Chemical Properties

10.1Physical data

Physical state	Particulate
Mean particle state	10 - 15 microns
Odour	faint 'earthy' odour
pH	11.5 - 12.5
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 flammable)
Density	2800 - 2900 kg/m^3
Solubility	N/A

10.2 Chemical Compounds

Mainly a mixture of -

$4CaO\text{-}3Al_2O_3\text{-}CaSO_4$
$CaO\text{-}Al_2O_3$
$2CaO\text{-}Al_2O_3\text{-}SiO_2$ $CaO\text{-}TiO_2$
$12CaO\text{-}7Al_2O_3$
$CaSO_4$

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 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 exposes in excess of the OES has been linked with rhinitis and coughing. Skin exposure has been linked to allergic (chromium) dermatitis. Allergic dermatitis more commonly arises though 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 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 Phases

- 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 and 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 0-7176-0763-1
- 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. John's/St. Andrew's/Red Cross
- Manual Handling Operations Regulations 1992
- Environmental Protection Act

Xi - Irritant

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