

Slagment

Slagment is a general purpose blended cement complying with AS 3972 Type GB. It is manufactured from specially selected granulated iron blast furnace slag, portland cement clinker and gypsum.

USES

Slagment is a versatile alternative for General Purpose portland cement and can replace it in most situations. Slagment compressive strength at 28 days of age is similar or higher than that of a General Purpose cement and significantly higher at later age.

When early age strengths are required, mixes should be suitably modified to provide the required performance. Slagment may be used in all applications where chemical attack is not a predicted risk.

It may be used in concrete, mortar, render or grout in general and major construction projects.

CEMENT PROPERTIES

The following table provides an example of some typical cement properties for Slagment manufactured in New South Wales.

Property	Slagment	AS 3972
Setting Time	Typical	Requirement
Initial	1.5-3.0 hours	45 minutes min.
Final	2.5-4.5 hours	10 hours max.
Soundness	1.0mm	5.0mm max.
Comp. Strength:		
3 days	20-28 MPa	Not specified
7 days	30-40 MPa	20 MPa min.
28 days	55-65 MPa	35 MPa min.

CEMENT FINENESS

The ability to intergrind the clinker and the slag granulate in a ball mill, allows Boral Cement to optimise performance characteristics of Slagment. Fineness index and blast furnace slag contents are varied to ensure that the performance of Slagment remains consistent. Generally, the fineness of Slagment will not exceed 450m²/kg.

COMPATIBILITY

Slagment may be mixed or blended with other cements complying with AS 3972. It may also be mixed with appropriate quantities of any supplementary Cementitious materials (SCMs) complying with AS 3582 (Fly Ash, Slag or Amorphous Silica) Reference to AS 1379 (Concrete) and AS 3600 (Structures) is required.

Slagment is compatible with chemical admixtures complying with AS 1478.1. Blending of SCMs, other cements or materials will alter the strength characteristics of Slagment.

CONCRETE PROPERTIES

Efflorescence is the unsightly white deposits of carbonated hydrated lime (calcium carbonate) on the surface of the concrete. This occurs when hydrated lime, as a byproduct of any cement hydration, is brought with water to the surface of concrete or mortar.

Lesser quantities of free hydrated lime will be liberated by the hydration process of Slagment than in the hydration of a similar amount of portland cement. Concrete containing Slagment is therefore less likely to exhibit the problem of efflorescence.



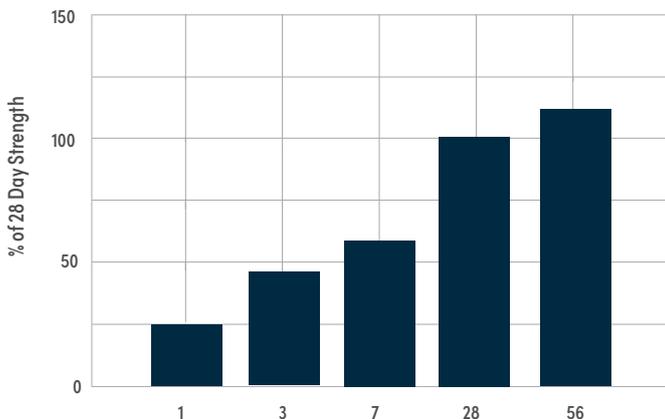
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COMPRESSIVE STRENGTH DEVELOPMENT

The following graph gives an indication of the rate of strength development of Slagment as a percentage of 28 day compressive strength.

Note: Data based on a typical 20mm Crushed river gravel/river + dune sand mix with 330 Kkm³ of Slagment cement, Water reducing and air entraining concrete admixtures.

Rate of strength development



BLUE GREEN STAINING

Under some climatic conditions concretes containing Slagment may develop a temporary blue-green colouration. This occurs in the presence of moisture and disappears when the hydrating coloured ferrous compounds are converted to colourless ferric compounds as concrete dries out and oxygen in the air reacts with the ferrous compounds. This process is not reversible, and the colour does not return once decolourised.

EFFECT OF EXCESS WATER

Use only the minimum amount of water to mix and place the concrete.

Excess water will have a detrimental effect on the compressive strength and other properties of concrete. The following graph shows the reduction in concrete strength with increased water addition.

Other factors that affect the strength and durability of concrete containing Slagment are:

Other factors that will effect the strength and durability of concrete:

- Mix design including admixtures
- Temperature – ambient and that of the materials
- Air content
- Compaction of concrete
- Curing of concrete.

MIX DESIGN

Dense, fully compacted concrete is essential to maximise both the strength and durability. Careful selection of mix components is essential and reference should be made to AS 1379 – The specification and manufacture of concrete and AS 3600 – Concrete Structures when selecting the required strength and cement levels appropriate for the project.

MIXING

AS 1379 gives requirements for material quality and mixing of ready-mixed concrete. Presence of salts and organic matter in aggregates and mixing water may affect concrete performance and relevant requirements of AS 1379 must be observed.

PLACING

AS 3600 gives requirements for handling, placing and finishing of concrete. Exposure classification usually determines both the quality of concrete and the depth of cover to reinforcement. Appropriate selection of the exposure classification is therefore critical.

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PLASTIC SHRINKAGE

Plastic shrinkage cracking can be avoided by protecting freshly placed concrete from excessive moisture losses from the surface. Application of evaporation retarding compounds (aliphatic alcohols) is recommended in dry and/or windy weather, irrespective of temperature conditions.

CURING

A minimum curing period of seven days or longer, depending on the exposure classification, is required and should begin as soon as practicable. Wet or moist curing is recommended, but other techniques may be suitable, including curing compounds to AS 3799 or polyethylene sheeting.

Concrete will benefit from curing in terms of reduction in shrinkage cracking potential, improved surface quality with respect to abrasion resistance, permeability to air and water, improved carbonation resistance.

AVAILABILITY

Slagment is available in bulk only. Details on the price and availability of the product will be provided upon request by contacting the Sales Manager on the numbers listed.

CLEAN UP AND STORAGE

The shelf life of Slagment is dependent on the storage conditions, as contact with air and moisture will cause deterioration in cement performance. Cement storage silos must be kept in good repair, with no damp air or moisture ingress.

It is recommended that Slagment be retested if the age of cement exceeds three months.

SAFE HANDLING

This product contains cement chemicals and trace amounts of hexavalent chromium. Avoid generating dust. Use personal protection equipment against exposure and alkali burns. Wash product off unprotected skin immediately with water. The use of goggles, dust masks, barrier creams and rubber gloves is recommended.

For further safety information consult the Safety Data Sheet for the product available at www.boral.com.au/cement

IMPORTANT NOTE

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