



Alkali Activated Slag Cement Preparation and its Properties

Shizhao Attard*

Department of Civil Engineering, University of Tasmania, Hobart, Australia

DESCRIPTION

Slag cement is hydraulic cement that is formed when granulated blast furnace slag (GGBFS) is ground to suitable fineness and is used to replace a portion of portland cement. It's a recovered from industrial by-product of an iron blast furnace. Molten slag diverted from the iron blast furnace is fleetly chilled, producing glassy granules that desired reactive cementitious characteristics when ground into cement fineness.

Once the slag is cooled and ground to a usable fineness it is stored and packed to suppliers throughout the country and states. Slag cement is generally found in ready-mixed concrete, precast concrete, masonry, soil cement and high temperature resistant structure products.

Strength and durability

Compressive and flexural strength: Concrete made with slag cement provides advanced compressive and flexural strengths when compared with portland cement concrete. Compressive and flexural strength examines the factors that prompt concrete strength, and explains how slag cement improves both compressive and flexural strength of concrete. Benefits of increased strength include enhanced safety, reliability, optimized element designs, which allow for thinner, lighter and fewer members in structures; optimized admixture designs that are experience and very less loss.

Terminology and specifications: Excellent primers for those new to the slag cement industry. Terminology and specifications derives types of slag cement related terms, including slag cement, granulated blast furnace slag, amalgamated cement, hydraulic cement and pozzolan. Standard specifications are necessary for those who work with slag cement. This specification technique brings three grades of finely ground granulated blast furnace slag as a cementitious material. The material described in this specification can also be used for blending with portland cement to produce cement containing the necessities of specification as a separate ingredient in concrete and mortar mixtures.

Standard specification for blended hydraulic cements: This specification is related to five classes of blended hydraulic cement for both general and special applications using slag cement with portland cement, or portland cement clinker or slag with lime. This specification prescribes constituents and proportions. The two types of blended cement using slag cement are:

Type IS-Portland blast furnace slag cement;

Type II (SM) Slag is modified into portland cement

Standard performance specification for hydraulic cement: This specification covers hydraulic cements for both general and special operations. It's a specification that defines performance required for cement and doesn't restrict the composition of the cement or its components. The specification analyse cements by types, based on specific requirements for general use, high early strength, resistance to sulfates, and heat of hydration. Optional conditions are provided for the property of low reactivity with alkali-reactive aggregates.

Ground granulated blast furnace slag: This primarily classifies the use of slag cement as a separate cementitious material added along with portland cement in the production of concrete. Other slags are deduced from the smelting of materials other than iron ores.

Specifications for structural concrete: This specification is a reference standard which the engineer or architect can make applicable to any building design by citing it in the design specifications. The stoner supplements it as required by designating individual design conditions. This covers the materials and proportioning of concrete; reinforcing and pre-stressing steels; production, placing, and curing of concrete; and form work design and construction. Methods of treatment joints and embedded particulars, repair of surface defects and finishing of formed surfaces are specified. Special techniques are used to construct slab, finishing, architectural concrete, mass concrete and accoutrements and techniques for constructing post tensioned concrete.

Correspondence to: Shizhao Attard, Department of Civil Engineering, University of Tasmania, Hobart, Australia, E-mail: shattard@tsm.au

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