



1. Product Name

Holcim GranCem® Slag Cement

2. Manufacturer

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3. Product Description

BASIC USE

Holcim GranCem® Slag Cement is part of Holcim's Envirocore™ family of environmentally friendly products. This product is a pre-consumer recycled material. It is manufactured using less production energy than portland cement. Use of this material may contribute to achieving points or credits in LEED® or other green building assessment systems.

Holcim GranCem Slag Cement is a cost-effective building material which is used in a wide variety of commercial and architectural concrete construction applications. Uses include cast-in-place, precast, bridges, roads, pipe, blocks, prestress concrete mixtures, masonry mortars, grouts, agglomerating and solidification. When properly used in concrete mixtures, GranCem Slag Cement is particularly suitable for providing light color, sulfate and alkali-silica reaction (ASR) resistance, low permeability and low heat for mass-concrete applications.

COMPOSITION & MATERIALS

The primary ingredient of GranCem Slag Cement is granulated blast-furnace slag (GBFS) that is ground to a fine powder. When mixed with water and portland cement (the traditional way that GranCem Slag Cement is used), the concrete sets and hardens into a solid monolithic mass. The hydration reaction forms a gel-like material called calcium silicate hydrate.

Holcim GranCem Slag Cement is produced to meet the requirements of ASTM C 989 and

AASHTO M 302. All Holcim manufacturing is quality controlled to ensure optimum product performance and uniformity.

BENEFITS

- Can increase compressive strength and durability when used with portland cement in concrete
- Meets requirements of ASTM C 989
- Meets requirements of AASHTO M 302

LIMITATIONS

There are many variables that affect concrete performance beyond the control of the GGBFS manufacturer. Good concreting practices are required in order to achieve desired results. As with all portland cement based concrete, attention must be given to formwork, batching, mixing, placing, finishing and curing.

SIZES

GranCem Slag Cement can be shipped by bulk, in barge, rail or truck quantities, as measured in metric tons.

4. Technical Data

APPLICABLE STANDARDS

ASTM International

- ASTM C 989 Standard Specification for Slag Cement for Use in Concrete and Mortars

GranCem Slag Cement is manufactured to conform to the requirements of ASTM C 989.

AASHTO

- AASHTO M 302 Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars

PHYSICAL/CHEMICAL PROPERTIES

GranCem Slag Cement is a finely divided material that typically is finer than Type I portland cement; is an off-white color; presents a specific gravity of about 2.88; and is handled and dispensed like portland cement.

5. Installation

METHODS

Concrete is a structural material consisting of hard, chemically inert material (usually aggregate) bonded together by portland cement (which can be partially replaced with GranCem Slag Cement) and water. Coarse aggregate can include gravel, crushed gravel or crushed stone; fine aggregate is also called sand. The character of structural concrete is largely determined by the water-cement



GranCem Slag Cement (Photo courtesy of MDOT)

ratio. The amount of cement in relation to the amount of aggregate is especially critical to a durable, strong concrete. Paste is composed of portland cement, GranCem Slag Cement, water, chemical admixtures and, if required, entrained air for freeze/thaw durability.

Admixtures

Freshly mixed (plastic) and hardened properties of concrete can be changed by adding admixtures (chemical, mineral or both) to concrete during batching. These admixtures are used to:

- Adjust time of setting and/or hardening rate
- Reduce water demand
- Increase workability
- Entrain air
- Provide cost-effectiveness
- Adjust other concrete properties

Trial-Batch Mixtures

For development of trial-batch mixtures, GranCem Slag Cement typically replaces portland cement pound for pound (kilo for kilo) in concrete, mortar and grout mixtures. The optimum amount of GranCem Slag Cement replacement of portland cement can vary with the application.

APPLICATION

GranCem Slag Cement has demonstrated compatibility with Types I, II, III and V portland cements, as well as with some combinations of fly ash or silica fume.

Good concreting practices are required for durable, strong concrete. Proper proportioning, batching, mixing, placing, consolidating, finishing and curing, as well as proper subgrade preparation, formwork, uniform slump and other techniques are critical to achieving the desired results.

Freshly mixed concrete should be plastic or semifluid and moldable.

GranCem Slag Cement is manufactured under controlled conditions, and it is laboratory tested to ensure consistent quality and uniformity. Do not change sources or proportions during a construction project without the prior approval of the project engineer.

PRECAUTIONS

Direct contact with the skin should be avoided. If contact occurs, the skin should be washed with water as soon as possible. Exposure of sufficient duration to wet GranCem Slag Cement can cause serious, potentially irreversible tissue destruction in the form of chemical (caustic) burns. If GranCem Slag Cement gets into the eyes, immediately rinse them thoroughly with water and seek medical attention. For more complete information, reference is made to the applicable Material Safety Data Sheets (MSDS), which should be consulted prior to use of this product. These MSDS are available upon request.

6. Availability & Cost

AVAILABILITY

GranCem Slag Cement is available throughout most of the United States.

COST

Pricing information can be obtained from the nearest Holcim Sales Office.

7. Warranty

Upon request, Holcim can provide Material Certification reports demonstrating that GranCem Slag Cement meets or exceeds applicable ASTM standards. Holcim (US) Inc. will not guarantee finish work, having no control over use of this product. Holcim shall not be responsible for condition of cement after delivering to dealer or distributor.

8. Maintenance

In areas where concrete cleaners and sealers are required, proper instructions should be followed. Contact the appropriate product manufacturer before application.

9. Technical Services

Technical service is available by contacting the nearest Holcim Sales Office at (888) 646-5246. With advance notice, technical service can be provided at jobsite locations.

10. Filing Systems

- SmartBuilding Index (SBI)
- Additional product information is available from the manufacturer
- www.holcim.us

Corporate Headquarters

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