



Key benefits/features

- Improved uniformity, consolidation and finishing
- Reduced bleeding
- Improved pumpability
- Increased strength
- Reduced permeability
- Enhanced durability
- Improve sulfate resistance
- Reduced efflorescence
- Minimized alkali-silica reaction
- Improved resistance to chemical environments
- Lowers heat of hydration (mass concrete)
- Lighter, brighter color
- Lowers environmental impacts

Slag cement

Product description

Heidelberg Materials Slag Cement conforms to ASTM C989/AASHTO M 302 standard specifications for “Slag Cement as a Constituent in Concrete and Mortars” and CSA A3001 “Cementitious Material for Use in Concrete.” Slag has cementitious properties similar to portland cement. It is typically used with portland cement at dosages between 25–80 percent, depending on the engineering parameters. The primary raw material of slag cement is a byproduct from the iron blast furnace process. It is a recycled, environmentally friendly product.

Applications

Heidelberg Materials Slag Cement is featured in a wide range of concrete and geotechnical applications including: ready mixed concrete, pre-cast, tilt-up, bridges, pavements, subbase, pre-stressed concrete members, concrete masonry units, architectural and concrete products, soil stabilization and solidification. Most standard specifications allow for the use of slag cement, including the FAA, USACE, individual state DOTs and Canada National Build Code and provincial transportation ministries. Contact local specifying agencies or a Heidelberg Materials Cement Company representative for details.

Properties

Heidelberg Materials Slag Cement and portland cement are both hydraulic cements that harden by chemically reacting with water to produce calcium-silicate hydrates (CSH), the primary binding agent in concrete.

Heidelberg Materials Slag Cement reduces excess calcium hydroxide $[Ca(OH)_2]$ by producing more CSH. Properly proportioned concrete mixtures made with Heidelberg Materials Slag Cement and portland cement exhibit higher strengths (flexural and compressive), reduced permeability and increased durability compared to portland cement concrete mixes.

Heidelberg Materials Slag Cement does not affect air entrainment and improves slump retention in properly engineered concrete mixes. It is often used in mass concrete, at high replacement levels, to control heat of hydration. It can also be used to control ASR, sulfate and chemical attacks.

The lighter color of concrete containing Heidelberg Materials Slag Cement leads to improved solar reflectivity designed to lower the urban heat island effect.



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Proportioning

Heidelberg Materials Slag Cement concretes may be proportioned by the same methods as portland cement concretes. When developing and/or selecting a concrete mixture, make certain that it meets the job requirements and applicable documents.

Optimum dosage rates may vary with the application, specific material, and other placing conditions. Concrete producers find two or three general-purpose mixes with Heidelberg Materials Slag Cement usually cover a variety of needs. Sometimes higher dosages of slag cement are required, especially in marine environments or mass concretes, when reducing either permeability or heat hydration is important.

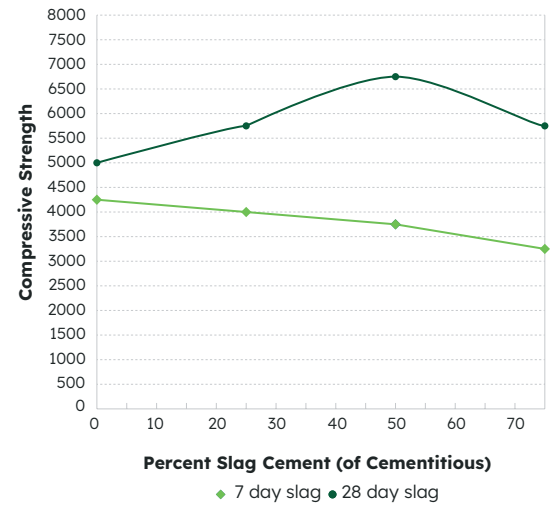
The fresh and hardened properties of slag cement concrete may vary with different materials, placing conditions and finishing practices. Trial batches should be made to determine the concrete capabilities for a specific situation. This also helps in evaluating and selecting the appropriate dosage rate needed for the application. Typical rates of slag in concrete in the U.S. are between 35% and 50% slag. Mixtures with a slag content of 35% or greater have a significantly lower environmental footprint.

Mixing, batching and handling

All concrete should be mixed thoroughly until it is uniform in appearance and all ingredients are evenly distributed. The same factors affect the set time of concretes made with slag cement as with ordinary portland cement. Generally, the higher the slag cement dosage, the slower the set time. This provides some advantages during hot weather concreting. Retarding admixtures and cold weather tend to slow set times for slag cement concretes. In addition, early strength with slag mixes can be improved by lowering w/c ratio, increasing total cementitious or using an accelerating admixture. As with all concrete, best placing and finishing practices must be followed.

Concrete color

Heidelberg Materials Slag Cement is typically white. Generally, higher dosage rates in a mix design will provide a lighter, cooler, brighter color. This can be advantageous for colored concrete consistency and reflectivity. A temporary blue greenish color may occur during curing.



For more information on EcoCemPLC™, our company or our products, visit us online at:

heidelbergmaterials.us

Caution

When dry, portland and slag cements are non-hazardous. When in contact with water (such as in eyes or skin) or when mixed with water to make concrete, mortar or grout it becomes highly alkaline and can irritate or burn the skin and injure the eyes when not properly handled. Direct contact should be avoided. If contact occurs, wash the affected area with water immediately. If fresh portland cement concrete or portland cement gets into the eyes, rinse them thoroughly with water and seek medical attention. Inhalation of dry portland cement can irritate the upper respiratory system. For additional safety information reference our Safety Data Sheets online at heidelbergmaterials.us

Warranty

The information and statements herein are believed to be reliable, but are not to be construed as the warranty or representation for which we assume legal responsibility. Heidelberg Materials portland and slag cements shall conform to the current standard specification for portland cement, ASTM C150, ASTM C595, CSA A3001, or ASTM C989 and no other warranty, representation or condition of any kind, expressed or implied (including no warranty of merchantability or fitness for a particular purpose) shall apply. Having no control over the use of cement, seller will not guarantee finished work, nor shall seller be liable for consequential damages.