



# NewCem<sup>®</sup> Brand Slag Cement

# LAFARGE

NewCem slag cement is engineered for strength and durability. Benefits start at the pour with easier workability, improved pumpability and less heat at hydration. NewCem delivers higher 28-day strengths, reduced permeability and increased resistance to chemical attack. As a "green" product, NewCem is also the environmentally friendly choice.

#### **Product Description**

NewCem is a ground granulated blast furnace slag (GGBFS).

#### **Applicable Specifications**

NewCem is produced in accordance with ASTM C 989 *Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars*, AASHTO M302 *Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars*, and CSA A3000 *Cementitious Materials Compendium*.

#### **General Statement**

NewCem is generally used in varying percentages as a portland cement replacement in concrete and mortars. Higher ultimate strengths, improved durability, economics and aesthetics are potential reasons for using NewCem. As with most cementitious products, care is needed when proportioning, batching, placing, finishing and curing concrete containing this product.

#### **NewCem and the Environment**

NewCem is a by-product material that is derived from the iron-making process. The use of NewCem in concrete saves virgin raw materials that would otherwise be needed for the production of portland cement. NewCem also requires less energy to produce than portland cement, so the amount of greenhouse gases released into the environment is reduced when NewCem partly replaces portland cement in concrete. NewCem can also be used to achieve LEED (Leadership in Energy and Environmental Design) points in the USGBC's (U.S. Green Building Council) LEED Program.





# NEWCEM®

## Properties of "Fresh Concrete"

**Water Requirements:** Concrete mixes containing NewCem will require about the same amount of water for a given slump as concrete containing only portland cement.

**Air Content:** The use of NewCem as a partial replacement for portland cement will not appreciably change the dosage rate requirements of air entraining agents. When changing mix ingredients, it is recommended to check dosage rates and adjust if necessary.

**Bleeding:** The bleeding characteristics of concrete containing NewCem will not be appreciably affected.

**Segregation:** There is no segregation issue related to the use of NewCem.

**Heat of Hydration:** NewCem can be used to moderate the development of heat in mass concrete. It is recommended that replacement factors above 60% be used for this type of application. It is highly recommended that mix designs be assessed on an individual basis.

**Setting Time:** Concrete containing NewCem may have extended set times compared to straight portland mixes, especially at lower ambient/concrete temperatures and higher replacement levels. At normal summertime temperatures, set times will only be slightly affected.

**Finishability:** The finishability of concrete is generally improved with the use of NewCem.

**Pumping:** Concrete containing NewCem generally has improved pumpability.

**Proportioning:** NewCem has a lower specific gravity than normal portland cement. Consequently, the mix design should be modified to accommodate this change. ACI 211 should be followed for proportioning and mix proportions should be verified.

**Curing:** Proper curing of all concrete is essential. It is recommended that the procedures in ACI 308 *Standard Practice for Curing Concrete* be followed.

## Properties of "Hardened Concrete"

**Strength:** Generally, later strengths (beyond 7 days) both compressive and flexural, are enhanced with NewCem. Early strengths (up to 14 days) can be reduced when compared to straight portland mixes, especially at higher replacement rates and at cooler temperatures.

**Permeability and Absorption:** When properly proportioned, concrete containing NewCem is less permeable and has a lower absorption rate than mixes containing only portland cement.

**Concrete Color:** Concrete made with NewCem as a replacement for portland cement will be lighter in color. A green or blue-green color may occasionally be observed in freshly cured concrete; however, this is very rare and will only occur under certain conditions. This tint normally disappears once the concrete surface is exposed to air and dries out.

**Alkali-Silica Reactivity:** Concrete containing NewCem can help mitigate ASR. This is dependent on the qualities of the aggregate and the replacement rate as well as other variables. Concrete mixtures should be assessed on an individual basis.

**Resistance to Sulfate Attack:** NewCem can be used as part of a system to improve the resistance of concrete to sulfate attack. The degree of resistance achieved is dependent on the replacement rate and other factors. Mixes should be assessed individually.

**Corrosion of Embedded Steel:** There is a direct relationship between permeability and corrosion resistance. Corrosion can be reduced by replacing part of the portland cement with NewCem in concrete mixtures.

**Carbonation:** When used in a properly designed concrete mix, and with appropriate finishing and curing procedures applied in the field, the use of NewCem will not significantly affect the depth of carbonation.

**Freeze-Thaw Resistance:** When used in a properly designed concrete mix with an adequate air-void system and with proper finishing and curing procedures applied in the field, the use of NewCem will not detract from the freeze-thaw resistance of concrete.

**Deicer Salt Scaling:** When using NewCem as a replacement for portland cement in concrete that will be exposed to deicing salts, the limits specified in ACI 318 *Building Code Requirements for Structural Concrete* and ACI 301 *Specifications for Structural Concrete* must be followed.

**Chemical Resistance:** Reduced permeability, and therefore improved chemical resistance, can be achieved through the use of NewCem in concrete mixtures.

**Note:** Appropriate testing should be conducted with different NewCem/portland levels to assure desired results are achieved. Results may vary with the use of different portland cements.

### Product Name

NewCem®

### Manufacturer

Lafarge North America Inc.  
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### Precautions

Direct contact with wet cement should be avoided. If contact occurs, the skin should be washed with water as soon as possible. Exposure can cause serious, potentially irreversible tissue destruction in the form of chemical (caustic) burns. If cement gets into the eyes, immediately rinse thoroughly with water and seek medical attention. For more information, reference the applicable Lafarge Material Safety Data Sheet (MSDS). The MSDS should be consulted prior to use of this product and is available upon request and online at www.lafargenorthamerica.com.

**Contact your Lafarge Regional Office for specific product information, availability and ordering.**

### Great Lakes Region

Bingham Farms, Michigan  
Phone: 248-594-1991

### Northeast Region

Montréal, Québec  
Phone: 514-861-1411

### River Region

Lee's Summit, Missouri  
Phone: 816-251-2100

### Southeast Region

Alpharetta, Georgia  
Phone: 678-746-2000

### Western Region

Calgary, Alberta  
Phone: 403-271-9110

### Limited Warranty

Lafarge warrants that Lafarge NewCem meets the requirements of ASTM C 989, AASHTO M302 and CSA A3000. Lafarge makes no other warranty, whether of merchantability, or fitness for a particular purpose with respect to Lafarge NewCem. Having no control over its use, Lafarge will not guarantee finished work in which Lafarge NewCem is used.

