



# LAFARGE

## Tercem 3000® Blended Hydraulic Cement

Provides flexibility in concrete proportioning to assist in achieving:

Higher Ultimate Strength

Improved Durability

Reduced Permeability

Improved Rheology

Better Finishability

Reduced Impact on the Environment



# Tercem 3000® Blended Hydraulic Cement

## Performance Benefits for the Concrete Industry

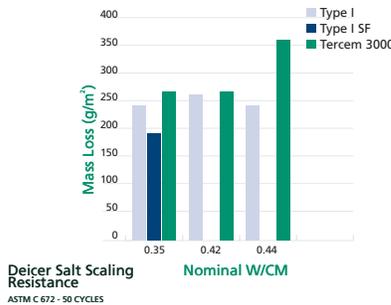
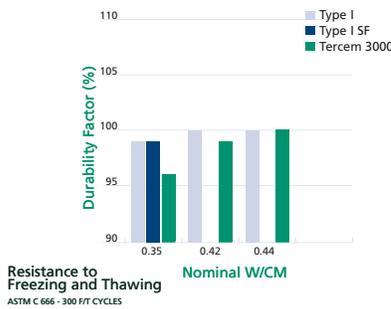
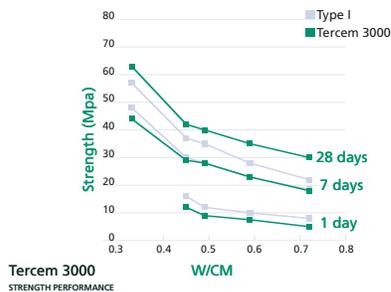
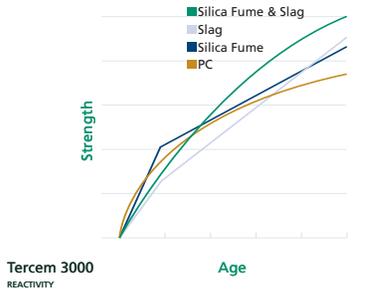
**Lafarge Tercem 3000** is a high-performance ternary hydraulic cement that provides superior strength and excellent durability. It is manufactured with portland cement, granulated blast furnace slag, and silica fume. It is an ideal product for high performance concrete applications. Tercem 3000 is also well suited for walls, foundations, beams, columns, water retention structures, precast and prestressed products, roads and bridges, and industrial floors. In addition, Tercem 3000 can provide outstanding results in roller compacted concrete.

Tercem 3000 has been used since 1998 to produce quality concrete meeting stringent design requirements for strength and durability. The materials in Tercem 3000 work synergistically to produce concrete that has superior strength, increased resistance to alkali aggregate reaction, increased resistance to sulfate attack, and reduced permeability. Tercem 3000 shows good freeze-thaw resistance when tested in accordance with ASTM C-666 and good deicer salt scaling resistance when tested in accordance with ASTM C 672. Tercem 3000 meets the requirements of the Bureau de Normalisation du Quebec 2621-900 for deicer scaling resistance. As with all concrete, for good freeze-thaw resistance and good deicer scaling resistance, a properly designed mixture that is finished and cured in accordance with ACI and CSA specifications and standards is essential.

Tercem 3000 contains post-industrial materials and can be used for projects where sustainable construction practices are required. Tercem 3000 can help a project achieve LEED credits.

Tercem 3000 meets the applicable requirements of CSA A3000 "Cementitious Material Compendium," ASTM C 595 "Blended Hydraulic Cement," A3001 "Blended Hydraulic Cement" and ASTM C 1157 "Standard Performance Specification for Hydraulic Cement."

In all applications where Tercem 3000 is used, all applicable project specifications, local standards, CSA standards, and ACI standards should be followed.





### Benefits of Tercem 3000® Blended Hydraulic Cement

- Superior 28 day strength
- Lower permeability
- Reduced bleeding
- Increased resistance to ASR
- Increased resistance to sulfate attack
- Improved durability
- Only one silo required
- Better finishability

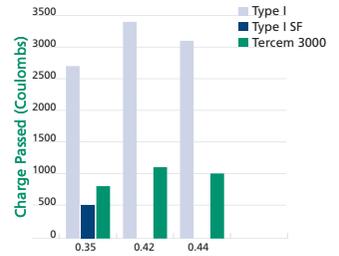
Graphical data presented represents results generated in Lafarge's laboratories. Individual results may vary and should be confirmed if specific properties are desired.

Product claims are based on proper use in accordance with recognized industry standards. Contact your Lafarge North America representative for assistance.

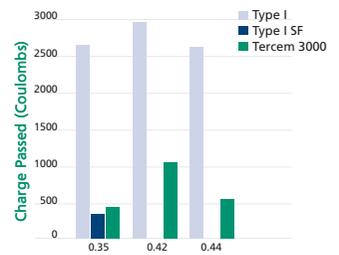




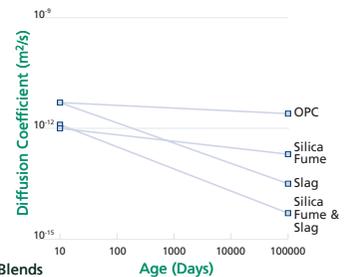
Lafarge Blended Cements provide a significant contribution to sustainable construction. The use of these materials in concrete production consumes less energy and offers improved efficiency and building performance. These materials can also be used to help achieve LEED (Leadership in Energy and Environmental Design) points in the USGBC's (U.S. Green Building Council) and CaGBC's (Canada Green Building Council) LEED programs.



Chloride Permeability  
ASTM C 1202 - 28 DAYS

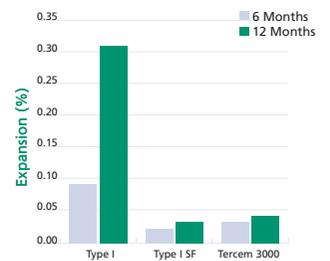


Chloride Permeability  
ASTM C 1202 - 56 DAYS



Ternary Blends  
CHLORIDE DIFFUSION

Dr. M.D.A. Thomas, University of New Brunswick, NB, Canada, April 2003



Sulphate Resistance  
ASTM C 1012

# Tercem 3000<sup>®</sup>

## Blended Hydraulic Cement

### Properties of “Fresh Concrete”

**Water requirements** – Tercem 3000 contains silica fume, which is a very fine material that generally requires the careful selection of admixtures to control water demand and slump loss to maximize the performance of the mixture. A properly designed mixture containing Tercem 3000 should have excellent slump retention even at low water to cement ratios.

**Air Content** – When changing any mixture ingredients, the air-entraining dosage should be checked and adjusted if necessary.

**Segregation and Bleeding** – Concrete containing this cement may have reduced bleed water, or bleed water may not be present at all. This product helps reduce segregation.

**Heat of Hydration** – Care should be taken when using this - or any other - cementitious product in mass concrete to insure the temperature gradients do not exceed those recommended by industry standards or by specification limits.

**Setting Time** – Setting time of Tercem 3000 is generally equivalent to GU or T-I/II cement.

**Finishability** – Finishability of concrete containing Tercem 3000 is similar to portland only mixtures. However, finishability is improved when compared to binary mixtures incorporating portland cement and silica fume.

**Pumping** – Pumpability of concrete containing this cement is generally equivalent or better than concrete containing straight portland cement.

**Proportioning** – Use of this cement does not require special proportions. Proportions should be selected according to ACI 211 and final mixtures should conform with applicable provisions of CSA 23.1. Trial batches should be done before using this cement in order to define the proportions required for strength and durability.

**Curing** – Proper curing of all concrete is essential. Special attention to curing is necessary when using Tercem 3000 due to the reduction of bleed water and should begin immediately after finishing. Surface cracking will occur if the concrete is allowed to dry prematurely.

### Properties of “Hardened Concrete”

**Strength** – Proper use of this cement enhances compressive and flexural strengths when compared to concrete containing straight portland cement.

**Permeability** – In a properly designed mixture, concrete containing Tercem 3000 will dramatically decrease permeability compared to concrete containing portland cement.

**Alkali-silica Reactivity (alkali aggregate reaction)** – Test data shows that Tercem 3000 increases the resistance to alkali silica reaction. The ability to mitigate ASR should be confirmed using actual project materials.

**Resistance to Sulfate Attack** – Tercem 3000 can be used as part of a system to improve the resistance of concrete to sulfate attack. The ability to mitigate sulfate attack should be confirmed using actual project materials.

**Freeze-Thaw Resistance** – Tercem 3000 shows good freeze-thaw resistance when tested in accordance with ASTM C-666 for freeze-thaw resistance. As with all concrete, for good freeze-thaw resistance, a properly designed mixture that is finished and cured in accordance with ACI and CSA specifications and standards is essential.

**Deicer Scaling** – Tercem 3000 meets all the specification limits of BNQ 2621-900 and, when tested in accordance with ASTM C-672, shows good deicer scaling resistance. As with all concrete, for good scaling resistance, a properly designed mixture that is finished and cured in accordance with ACI and CSA specifications and standards is essential.



### General Statement

Tercem 3000 is a hydraulic cement containing a blend of silica fume, granulated blast furnace slag and portland cement. This cement is generally used in high performance applications, where enhanced strength and/or durability properties are required. To achieve these and other special properties, particular care is needed when proportioning, batching, placing, finishing and curing concrete containing this product.

### 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.lafarge-na.com](http://www.lafarge-na.com).



### Company Profile

Lafarge in North America is part of the Lafarge Group. The world leader in building materials, active on five continents, the Lafarge Group holds top-ranking positions in cement, aggregates, concrete and gypsum.

By focusing on the development and improvement of building materials, Lafarge puts the customer at the core of its strategy and offers the construction industry and the general public innovative solutions that will bring more safety, comfort and beauty to our everyday lives.

Please contact your Lafarge Office for specific product information, availability and ordering.

#### Lakes and Seaway Business Unit

Bingham Farms, Michigan  
Phone: 248-594-1991

#### U.S. East Business Unit

Alpharetta, Georgia  
Phone: 678-746-2000

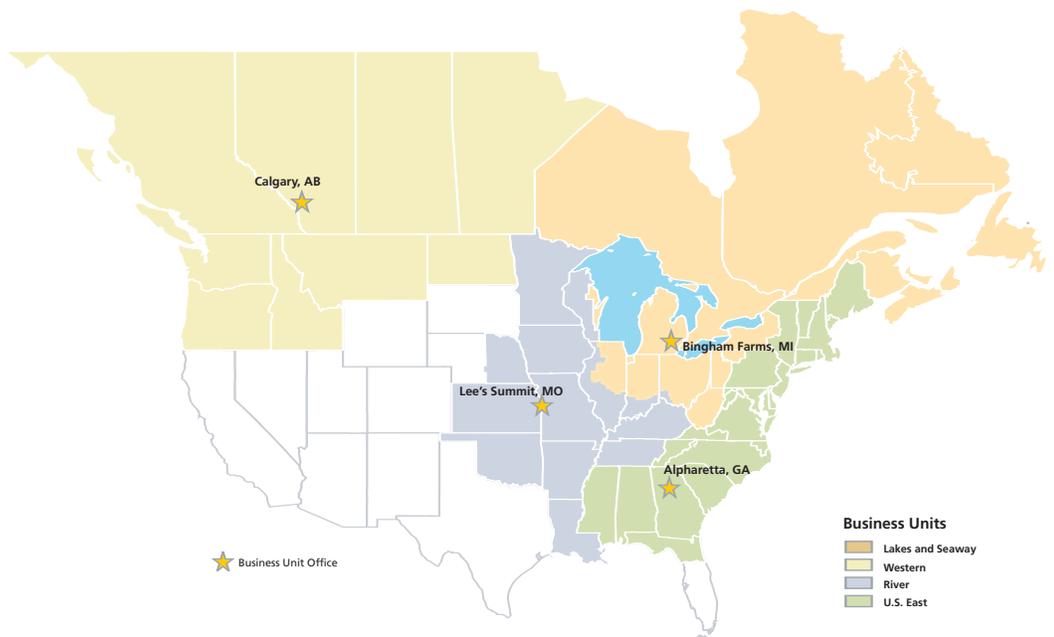
#### River Business Unit

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

#### Western Business Unit

Calgary, Alberta  
Phone: 403-271-9110

### Lafarge North America Cement Operating Areas



### Limited Warranty

Lafarge warrants that Lafarge Tercem 3000® meets the applicable requirements of ASTM C 1157, ASTM C 595 and CSA A3001. Lafarge makes no other warranty, whether of merchantability or fitness for a particular purpose with respect to Lafarge Tercem 3000®. Having no control over its use, Lafarge will not guarantee finished work in which Lafarge Tercem 3000 is used.



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