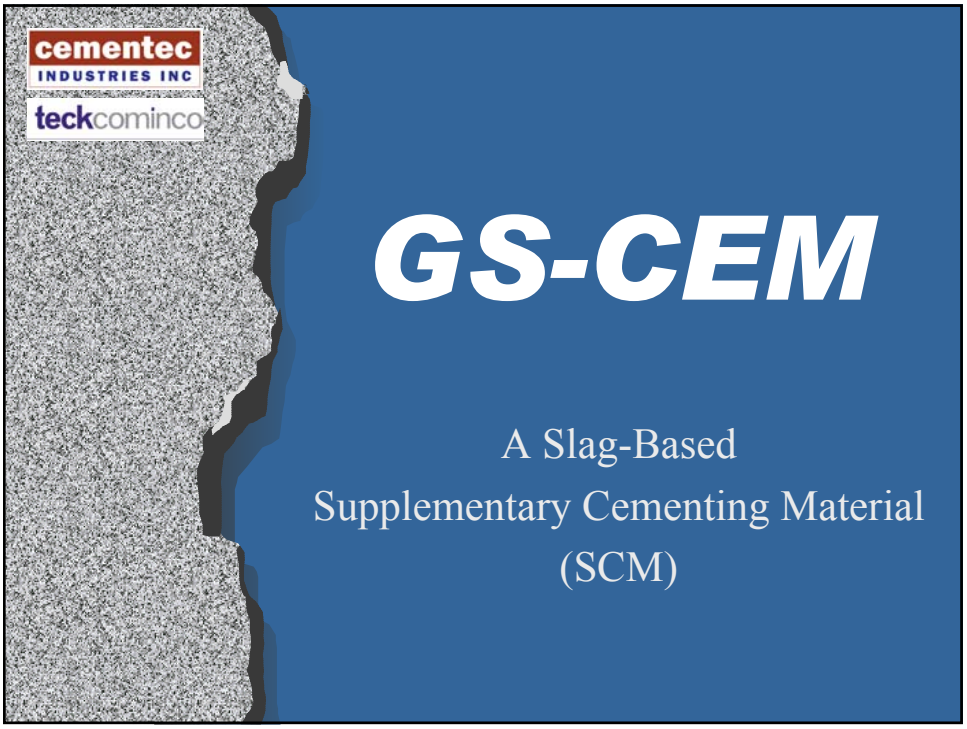
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GS-CEM
A Slag-Based
Supplementary Cementing Material
(SCM)


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GS-CEM Development
Teck Cominco Metals Ltd. is a metals mining, smelting and refining company with assests of approximately $5 billion. (World's largest zinc producer).
Cementec Industries Inc. manufactures and distributes proprietary construction products.
GS-CEM has been developed in partnership between Teck Cominco and Cementec.

What is *GS-CEM*?

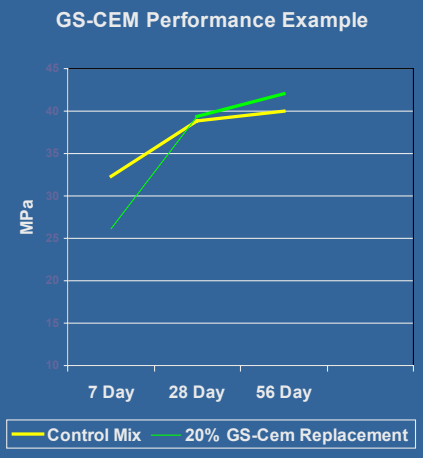
- High Performance Supplementary Cementing Material conforming to CSA standards.
- The primary feedstock for GS-CEM is a fumed smelter slag supplied by Teck Cominco Metals Ltd.
- GS-CEM is manufactured by finely intergrinding proprietary ingredients with the fumed smelter slag feedstock.

GS-CEM History

- Laboratory Development (1995 - 1998)
- Field Trials (1998 - 2001)
  - 40+ Commercial Projects
- Commercial Production (2001)
- Ongoing testing performed by independent laboratories.

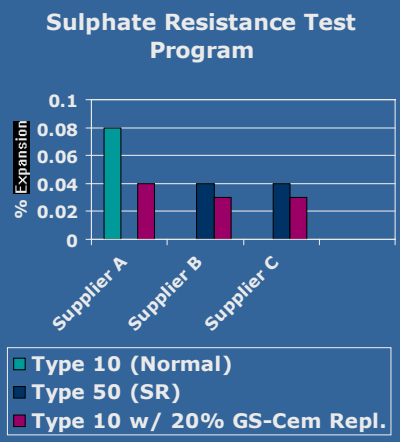
Effect of *GS-CEM* on Concrete Strength

- Common concrete mixes with 15-20% GS-CEM content by weight of cement (replacing an equal amount of cement) show an increase in later-age (28 and 56 day) compressive strength.



Effect of *GS-CEM* on Concrete Sulphate Resistance

- Compositions of 80% Type 10 with 20% GS-CEM showed greater Sulphate Resistance than Type 50 equivalents.
- Meets CSA requirement for High Resistance to Sulphate Expansion (0.05% Max. @ 6 mos.)
- Standard: CSA A456.2C8 (ASTM C1012)

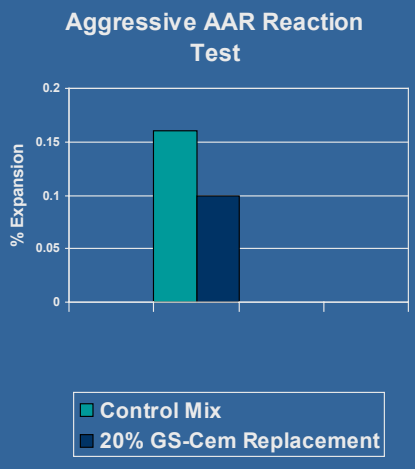


Effect of *GS-CEM* on Concrete Durability

- In-house freeze-thaw testing of GS-CEM concrete has shown the potential to improve concrete durability.
- Further independent verification testing according to ASTM C666 and ASTM C672 is currently being conducted to quantify durability performance.

Effect of *GS-CEM* on Concrete AAR

- Aggressive test using high alkali cement and reactive aggregate reduced "highly reactive" mix to "moderately reactive" (38% suppression) with 20% Type 10 replacement.
- GS-CEM to be tested for potential to suppress "moderately reactive" aggregates to "nonreactive".
- Standard: CSA A23.2-14A (ASTM C1293)



Other *GS-CEM* Attributes

- Effective Bleed Water Control
- Improved Finishability
- Set-time
  - Equivalent to cement control at replacement rates up to 20% in common concrete mixes.
- Color
  - Slightly darker color as associated with High Performance Concrete (HPC).

GS-CEM Production Plant

- Initial plant with 10,000 to 30,000 t/yr production capacity commissioned in Calgary in 2001.
- Key element is specialty multi-stage, high intensity, low power requirement vibratory grinders.
- Long-term: Larger Production Plant.
- Plant Tour.

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GS-CEM Production Plant

Slag Stockpile, Feed Hopper and Reject Silo

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GS-CEM Production Plant

Natural Gas Fired Rotary Dryer

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GS-CEM Production Plant

Computerized Proportioning of Ingredients Prior to Intergrinding

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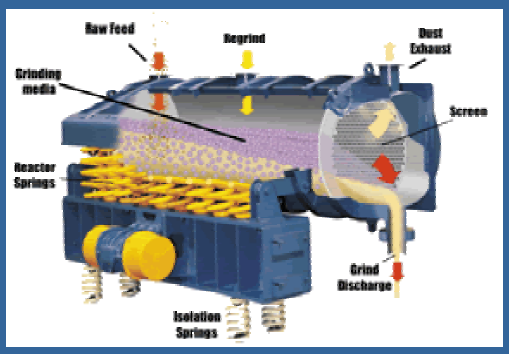
GS-CEM Production Plant



3-Stage Specialty High Intensity Vibratory Grinding System

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GS-CEM Production Plant

Fully Automated Control System

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GS-CEM Production Plant

Malvern Laser Particle Size Analyzer for Quality Control

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GS-CEM Production Plant

Product Silos & Bulker Trailer Fleet

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GS-CEM Applications

Industrial / Commercial / Residential

- Ready-Mix Concrete
- Precast Concrete
- Shotcrete
- Packaged Cementitious Materials
- Oilwell Cementing
- Environmental (Solidification/Stabilization)

GS-CEM Technical Support

- GS-CEM Compliance Test Data
- Material Safety Data Sheet (MSDS)
- Technical Support
  - Mix Design
  - Laboatory and Field Support
  - Project Specific Input

GS-CEM Project Photos

Ready-Mix Concrete

GS-CEM
Project Photos

Precast Concrete

GS-CEM - An Environmentally Friendly Product

- Manufactured from recyclable industrial by-product produced from a rigidly controlled, consistent process.
- Independent TCLP test performed on fragmented and pulverized concretes showed no concerns.
- GS-CEM is participating in the EcoSmart Concrete Project, a government-industry partnership aimed at reducing carbon dioxide emissions by encouraging the use of supplementary cementing materials.

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GHG Emission Benefit

- Emissions produced by the prototype production plant are greater than potential full-scale production plant (per mt).
- Emissions from production and transportation is 0.2679 mt CO_2 per mt of GS-Cem.
- Emissions from production only is 0.2102 mt CO_2 per mt of GS-Cem.

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GHG Reduction

- The production of Portland Cement is reported to produce 0.8 to 1.0 mt of CO_2 per mt of cement.
- The use of GS-Cem in concrete mixes would decrease CO_2 emissions by 0.6 to 0.8 mt per mt of GS-CEM used.