



**Emerald**<sup>™</sup>  
**SERIES**

High Volume Slag Concrete





## HIGH VOLUME SLAG CONCRETE

### INTRODUCTION TO HIGH VOLUME SLAG CONCRETE

High Volume Slag Concrete is a fundamentally green material that reduces Carbon Dioxide (CO<sub>2</sub>) and is highly durable. Using High Volume slag concrete can help create energy-efficient building systems while reducing the “heat island” effect because of its lighter color. High Volume Slag Concrete not only improves resistance to sulphate and other aggressive chemicals but also increases compressive and flexural strengths.

**Emerald Series™** is a new generation of concrete designed to reduce the carbon footprint using post industrial waste, post consumer waste, recycled concrete, locally harvested raw materials, and pervious concrete designed for storm water management.

Emerald Series™ Products	Environmental Attributes	LEED Category	LEED Credits Product Contributes To
High SCMs Concrete	<ul style="list-style-type: none"> <li>Higher percentage of recycled content</li> <li>Reduced carbon content by minimizing amount of portland cement</li> </ul>	<ul style="list-style-type: none"> <li>Materials &amp; Resources</li> </ul>	<ul style="list-style-type: none"> <li><b>MR 4 Recycled Content</b> 10% (1 Point) or 20% (2 Points)</li> <li><b>MR 5 Regional Materials</b> 10% (1 Point) or 20% (2 Points)</li> </ul>
Moderate SCMs Concrete	<ul style="list-style-type: none"> <li>Increased durability</li> </ul>	<ul style="list-style-type: none"> <li>Innovation In Design</li> </ul>	<ul style="list-style-type: none"> <li><b>ID 1.1 Innovation In Design</b> (1 Point)</li> </ul>

**SCMs:** Supplementary Cementing Materials - locally produced and reused material, reduced carbon emissions; **MR:** Materials and Resources;

**ID:** Innovation in Design

**Emerald Series™** can also contribute toward **Regional Priority Credits**. Regional Priority Credits incentivizes the achievement of credits that address geographically specific environmental priorities. If a Regional Priority Credit is earned, then a bonus point is awarded to the project's total points. Check with your local USGBC chapter to see what Regional Priority Credits are available in your area.

### HOW HIGH VOLUME SLAG CONCRETE'S LIGHTER COLOR ENHANCES THE ENVIRONMENT

Slag Concrete is whiter in color than Portland cement, fly ash, or silica fume, resulting in lighter-colored products with higher reflectivity. Slag Concrete has multiple environmental benefits:

- Lighter colored pavements, such as parking areas and streets, produce brighter environments with higher visibility and improved safety
- The lighter color of slag concrete helps reduce the head island effect in large metropolitan areas

Because urban areas have a higher concentration of structures and surfaces that absorb heat, they tend to experience higher temperatures than rural areas do. Buildings and pavements that are lighter in color reflect more light, minimizing the head island effect, which reduces the energy needed for cooling and lowering ozone levels.

### HIGH VOLUME SLAG CONCRETE ENVIRONMENTAL BENEFITS

- Conserved landfill space
- Saved energy
- Higher reflectivity
- Reduced CO<sub>2</sub> emission
- Lighter color
- Higher heat resistance

**HIGH VOLUME SLAG CONCRETE ENGINEERING BENEFITS****Improved Concrete Workability**

- With High Volume Slag Concrete, the mix becomes more mobile, but cohesive (thixotropic effect)
- Thixotropic effect does not affect ease of placement or pumpability

**Enhanced Finishability**

- Since High Volume Slag Concrete is more cohesive, it reduces bleeding and segregation
- High Volume Slag Concrete results better surface finish and better fill of precast concrete molds
- With High Volume Slag Concrete, there is less risk of plastic and thermal cracking

**Lower Permeability**

- High Volume Slag Concrete lowers permeability
- High Volume Slag Concrete demands lower water content

**Improved Resistance to Aggressive Chemicals**

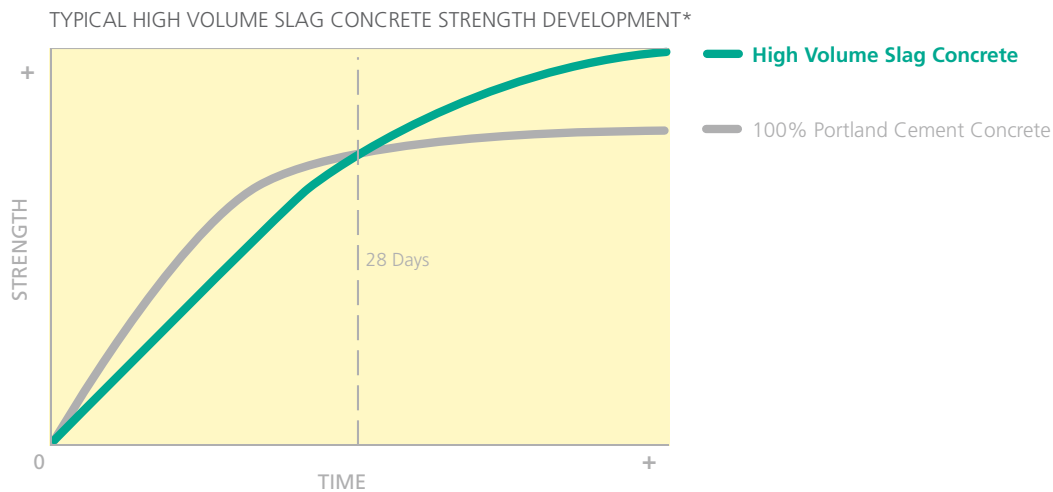
- High Volume Slag Concrete has higher sulphate resistance
- High Volume Slag Concrete improves resistance to aggressive chemicals

**Increased Compressive and Flexural Strengths**

- High Volume Slag Concrete can be used to design frost resistance construction
- High Volume Slag Concrete increases compressive and flexural strengths
- High Volume Slag Concrete can be designed to achieve different desired strength levels

**Reduced Heat of Hydration**

- With its lighter color, High Volume Slag Concrete reduces heat of hydration



\* Strength development can be customized to meet your specific project needs.



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