

**PRODUCT NAME**

St Marys CemPlus™ Slag Cement

**MANUFACTURER**

St Marys Cement

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**PRODUCT DESCRIPTION**

St Marys CemPlus™ Slag Cement is a supplementary cementitious material manufactured by grinding granulated blast-furnace slag (GBFS) to strict quality control standards. CemPlus™ is produced to meet the requirements of ASTM C 989 and AASHTO M302.

**BASIC USE**

CemPlus™ Slag cement is a hydraulic cement made entirely from a pre-consumer recycled material. It is used as a partial replacement for Portland cement in concrete. Its applications are wide and include ready mixed concrete, precast concrete, concrete pipe, concrete block, masonry mortars, grouts, solidification, soil stabilization and any application where Portland cement is used.

Concrete is a structural material consisting of fine and coarse aggregates, cementitious materials, water and chemical admixtures. Mix designs for concrete performance typically restrict the amount of water used to produce concrete. The ratio of the amount of water used to the amount of cementitious materials added is known as the “water to cementing materials” ratio (w/cm).

CemPlus™ slag cement is often used as a direct replacement (1:1) for Portland cement in a concrete mix design without the need to alter any w/cm ratio formulation or the quantity of the admixtures required to achieve equivalent performance.



Replacement levels of CemPlus™ slag cement vary on the type of exposure conditions. Typical slag cement content may be up to 40%, by weight replacement of Portland cement. Higher levels (40% to 80%) of replacement are common when attempting to mitigate against potential alkali silica reactivity, lower heat development or resist the ingress of sulphates into concrete.

**BENEFITS**

CemPlus™ use has the advantage of producing a lighter, more aesthetically pleasing concrete that can be used for architectural applications. Lighter surfaces also result in a brighter and safer environment leading to savings in lighting requirements.

Using CemPlus™ as a partial replacement for Portland cement in concrete results in lower embodied energy and greenhouse gas emissions. This contributes to achieving credits in LEED and other green building assessment systems.

CemPlus™ use in concrete is widely accepted as a constituent material to improve concrete’s resistance to the environment. Slag cement use in concrete has been shown to increase compressive and flexural strengths, reduce porosity and permeability, increase sulphate resistance, reduce heat of hydration and mitigate against potential alkali silica reactions (ASR).

### **LIMITATIONS**

Using CemPlus™ replacements >25% in temperatures below 50°F may result in slower set times and slower strength gains in concrete. As with any cement-based system, proper curing procedures should be followed when using slag cement.

CemPlus™ concrete in the early stages of hydration may appear blue-green in colour which dissipates after exposure to air. Concrete that remains submerged in water may retain a blue-green colour for a longer period of time.

### **TECHNICAL DATA**

#### **APPLICABLE STANDARDS**

ASTM C989 Slag Cement for use in Concrete and Mortars

AASHTO M302 Standard Specification for Slag Cement for Use in Concrete and Mortars

### **PHYSICAL AND CHEMICAL PROPERTIES**

CemPlus™ Slag Cement has similar handling characteristics to Portland cement powder.

CemPlus™ Slag Cement is off-white to white in colour and has a specific gravity of 2.92.

### **PRECAUTIONS**

Cementitious materials can be harmful to skin and eyes. Exposed skin areas should be washed with water as soon as possible. If cement gets into the eyes, rinse thoroughly with water and seek immediate medical attention. Wear appropriate clothing and protective gear when handling these materials. Consult Safety Data Sheets (SDS) for detailed information.

### **AVAILABILITY AND COST**

#### **AVAILABILITY**

Contact manufacturer for information on distribution and availability.

#### **COST**

Pricing and cost information may be obtained from the manufacturer.

### **WARRANTY**

Manufacturer will provide mill test certificates that the products meet and exceed applicable ASTM and AASHTO specifications.

St Marys Cement will not guarantee finished work, having no control over the use of this product.

### **TECHNICAL SERVICES**

For technical assistance contact the local St Marys Cement office.