

## **Product Evaluation Form**

### **RE: Review of EcoCem Plus (GULb-20F and HSLb-20F)**

#### **PRODUCT**

EcoCem Plus (GULb-20F and HSLb-20F) is a Blended Portland Limestone Cement manufactured and distributed in Alberta by Lehigh Cement located in Edmonton, Alberta.

### **VENDOR CLAIMS AND INFORMATION**

#### **CLAIMS**

EcoCem PLUS is a blended portland-limestone cement (PLC) designed to provide strength and durability while significantly reducing carbon footprint in concrete. Implementing the use of this cement will help reduce silo requirements at concrete plants. Quality control at the cement plant provides accurate raw material dosage, reducing proportioning demands at the concrete plant. EcoCem PLUS provides superior durability and strength as type F fly ash content provides increased workability and added protection against AAR and High Sulphate environments.

#### **DESCRIPTION**

EcoCem PLUS is produced at the cement plant by inter-grinding clinker, Type F fly ash and limestone. This product is CSA designated as GULb-20F & HSLb-20F.

#### **POTENTIAL USAGE**

EcoCem Plus (GULb-20F and HSLb-20F) is an alternative to GU cement and 20 percent fly ash. In addition, this product can be used in most applications above or below ground, and it also eliminates need for using Type HS or HSe cement.

### **ALBERTA TRANSPORTATION COMMENTS**

#### **EXPERIENCE**

Alberta Transportation has no prior experience with EcoCem Plus (GULb-20F and HSLb-20F) cement.

#### **APPLICABLE STANDARDS**

1. 2020 Standard Specifications for Bridge Construction, Section 4 (Cast-In-Place Concrete)
2. CSA A3000-18
3. CSA A23.1/A23.2-19

#### **RECOMMENDATIONS**

EcoCem Plus (GULb-20F and HSLb-20F) cement be listed as a 'Trial Product' under Alberta Transportation's Products List, Hydraulic Cement - Proprietary, based on the information provided. Final acceptance as a proven product will be based on field trial performance. All trial project limitations of use specified in product evaluation form must be met for it to be considered for future use on Alberta Transportation's projects.

**LIMITATIONS OF USE - BRIDGES:**

1. The use of EcoCem Plus (GULb-20F and HSLb-20F) cement requires prior written approval of the Director of Bridge Engineering Section of Technical Standards Branch;
2. Use of EcoCem Plus (GULb-20F and HSLb-20F) cement shall be limited to bridge structures with a clear deck area less than or equal to 1500 m<sup>2</sup>;
3. EcoCem Plus (GULb-20F and HSLb-20F) cement shall not be used in Class HPC and Class HPC with steel fibres mix, as specified in section 4.4.1 of Standard Specifications for Bridge Construction;
4. EcoCem Plus (GULb-20F and HSLb-20F) cement shall not be used for precast bridge components;
5. All requirements of the 2020 Standard Specifications for Bridge Construction shall apply to it use;
6. EcoCem Plus (GULb-20F and HSLb-20F) cement, when produced with clinker, shall have minimum 4% Calcium Aluminate (C3A) content; and
7. Trial batch testing shall be completed for each project design mix with EcoCem Plus (GULb-20F and HSLb-20F) cement regardless of the Class of concrete and must demonstrate that the concrete meets all the requirements of 2020 Standard Specifications for Bridge Construction, Section 4.4 (Class and Composition of Concrete). Trial batching must be completed in accordance with all requirement specified in Subsections 4.4.4 including 4.4.4.2, regardless of the Class of Concrete being used with EcoCem Plus (GULb-20F and HSLb-20F) cement.

**LIMITATIONS OF USE - HIGHWAYS:**

1. The use of EcoCem Plus (GULb-20F and HSLb-20F) cement requires prior written approval of the Director of the Surface Engineering Section or the Roadway Standards Specialist of Technical Standards Branch;
2. Use of EcoCem Plus (GULb-20F and HSLb-20F) cement shall be limited to work in Section 4.2 of the Standard specifications for Highway Construction: Concrete Curbs, Gutters, Sidewalks, Medians and Traffic Islands (including roundabout islands);
3. All requirements of the Standard Specifications for Highway Construction shall apply to it use; and
4. EcoCem Plus (GULb-20F and HSLb-20F) cement, when produced with clinker shall have minimum 4% Calcium Aluminate (C3A) content.

**TRIAL PROJECTS**

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cc Innovations Evaluation Committee – Roger Skirrow,  
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