

Product Evaluation

RE: Review of Lafarge CSA A3000 Type GUL Cement

VENDOR CLAIMS AND INFORMATION

CLAIMS

CSA A3000 Type GUL cement can be used as a cement type replacement for Type GU to lower the carbon footprint of cement manufacturing. This product equals the strength and durability under CSA and ACI. The use of Portland limestone cement in manufacturing concrete decreases CO₂ emissions by 10% while still producing concrete with the same level of strength and durability as the concrete produced with regular Portland cement.

DESCRIPTION

GUL Cement is supported in CSA A3001 among the primary cement material alternatives. Is it also recognized as a primary cementing material in the latest edition of CSA A23.1-14, Concrete materials and methods of concrete construction/Test methods and standard practices for concrete.

POTENTIAL USAGE

Bridges, pavements and highway projects.

STANDARDS

CSA A3000 Type GUL cement meets the requirements of CSA A3001, CSA A23.1-14 and AASHTO M-240.

ALBERTA TRANSPORTATION COMMENTS

EXPERIENCE

Alberta Transportation has no experience with this product.

APPLICABLE STANDARDS

- 2017 Standard Specifications for Bridge Construction, Section 4 (Cast-In-Place Concrete)
- CSA A3001
- CSA A23.1-14

RECOMMENDATIONS

CSA A3000 Type GUL will 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 requirements must be met for it to be considered for use.

TRIAL PROJECT REQUIREMENTS - BRIDGES:

1. The use of CSA A3000 Type GUL cement requires prior written approval of the Director of Bridge Engineering Section of Technical Standards Branch.
2. Use of Type GUL cement shall be limited to bridge structures with a clear deck area less than or equal to 1500 m².
3. Type GUL Cement shall not be used for precast bridge components.
4. All requirements of the Standard Specifications for Bridge Construction shall apply to it use.
5. Type GUL cement, when produced with clinker shall have minimum 4% Calcium Aluminate (C₃A) content.
6. Trial batch testing shall be completed for each project design mix with Type GUL Cement regardless of the Class of concrete and must demonstrate that the concrete meets all the requirements of 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 4.4.4.1 and 4.4.4.2 regardless of the Class of Concrete being used with type GUL cement.

TRIAL PROJECT REQUIREMENTS - HIGHWAYS:

1. The use of CSA A3000 Type GUL cement requires prior written approval of the Director of the Surface Engineering Section or the Roadway Standards Specialist of Technical Services Branch.
2. Use of Type GUL 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 its use.
4. Type GUL cement, when produced with clinker shall have minimum 4% Calcium Aluminate (C_3A) content.

TRIAL PROJECTS

BF1973 Hwy 22 over Cattle Pass, S. of Longview

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