

**2008 – BLENDED SUPPLEMENTARY CEMENTITIOUS
MATERIALS FOR USE IN CONCRETE**

SECTION 2008

BLENDED SUPPLEMENTARY CEMENTITIOUS MATERIALS FOR USE IN CONCRETE

2008.1 DESCRIPTION

This specification covers blended supplementary cementitious materials (SCMs) that may be used as a partial replacement for portland cement in concrete, when allowed by other parts of the Contract Documents.

2008.2 REQUIREMENTS

a. All individual SCMs to be blended must be prequalified according to **DIVISION 2000**.

b. Provide material that complies with the chemical and physical requirements of ASTM C 1697, except the loss on ignition may not exceed 3.0%. The supplementary optional physical requirements apply, except that with the "Effectiveness in Controlling Alkali-Silica Reaction," the expansion of the test mixture as a percentage of the low-alkali cement control at 14 days may not exceed 120%. Conduct this testing with 15% blended supplementary material and a Type I/II cement with an alkali content between 0.52% and 0.60%. Do not vary the amount of pozzolan or slag cement in the finished blended supplementary cementitious material from the target value by more than 2.5% for silica fume and not more than 5% for other supplementary cementitious materials.

c. The quality-monitoring program must comply with the minimum sampling and testing frequencies established in **DIVISION 2000** for the individual materials being blended. If the required sampling and testing frequencies of two or more SCMs vary, the sampling and testing plan of the SCM with the higher frequency will govern. This frequency may be altered with the approval of the Bureau Chief of Construction and Materials, provided the monitoring intent of each material is met or exceeded.

d. There are other requirements that must be met for the blended supplementary cementitious materials /cement mixture in addition to those cited above for qualification of the blended supplementary cementitious materials alone. Additional testing will be required for specific applications. Consult the Contract Documents before proposing the use of blended supplementary cementitious materials in concrete.

2008.3 TEST METHODS

Sample and test blended supplementary cementitious materials according to **DIVISION 2000**. Field sample according to Part V, KT-29.

2008.4 PREQUALIFICATION

a. **Becoming Prequalified.** Each supplemental cementitious material to be blended must be prequalified for use by KDOT on an individual basis prior to approval of the blended SCMs. Refer to **DIVISION 2000** for prequalification requirements for each individual type of material. Each blended SCM must also be prequalified as follows:

(1) Submit the following to the Engineer of Tests:

(a) A copy of the quality control plan for the source. The plan should include information on where and how sampling is performed, frequency, and what standards (ASTM, etc.) are used.

(b) A 2-gallon sample of blended product representative of material intended for use on KDOT projects.

(c) Certified test results of SCM produced by the material source during the 6 months immediately before the prequalification request. Show the high, low and average values or statistical analysis for each month.

(e) Written evidence of the latest Cement and Concrete Reference Laboratory (CCRL) inspection of the laboratory performing the SCM testing.

(2) The Engineer of Tests will test the submitted sample and review the information submitted by the source, for compliance with the Contract Documents. The Bureau Chief of Construction and Materials will notify the source

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of the results in writing. Sources complying with all requirements will be placed on a list of prequalified blended supplemental cementitious materials sources maintained by the Bureau of Construction and Materials.

(3) Prequalification of the source of product will be based on material produced when the material producer is using specific materials, equipment and processes. Any change in materials, materials sources, equipment or processes voids the source prequalification, and a new prequalification will be required.

b. Maintaining Prequalified Status. After a source has gained prequalified status, the source will be permitted to furnish the product for use on KDOT projects provided the following conditions are met.

(1) Submit quality monitoring test reports monthly for all monitoring samples.

(2) Use an approved laboratory to conduct quality control tests. The laboratory will be considered approved if it is properly equipped, has the capabilities to perform the tests required by the Contract Documents and is regularly inspected by the CCRL program. Continued approval of the control laboratory and the source will depend on satisfactory comparison of its test results with the results obtained by the Materials and Research Center.

(3) The source has not changed materials, material sources, equipment or processes since prequalification.

2008.5 BASIS OF ACCEPTANCE

a. Prequalification as specified in **subsection 2008.4.**

b. A proper certification must accompany each shipment of blended product. Provide to the Field Engineer 2 copies of the bill of lading which includes the following certification statement and the signature of a responsible company representative.

Certification Statement

The material herein has been sampled and tested as prescribed by KDOT and complies with the applicable specification requirements for Blended Supplementary Cementitious materials with the following designation: _____.

Date _____ Signed _____

Identify the bills of lading with a project number, and denote the product source, the type and the quantity in the shipment. Retain these copies at the project or ready mix plant for the Field Engineer's records.

In the case of more than one project being supplied by a ready mix plant, the plant must provide the Field Engineer with a copy of the bill of lading, or a signed listing of the bills of lading representing the blended product incorporated in each project.

Note: Verification samples will be obtained by KDOT personnel at the project site. Test results which do not comply with the Contract Documents may be considered sufficient cause to rescind approval to furnish blended supplementary cementitious material on a certification basis.