

SECTION 729

SUPPLEMENTARY CEMENTITIOUS MATERIALS (SCMS)

SCOPE

729.01.01 MATERIALS COVERED

- A. This specification covers the quality of SCMs used in Portland cement products.
- B. Supplementary Cementitious Materials shall conform to the appropriate ASTM requirements as follows:
1. Coal Ash (such as fly ash or bottom ash) shall conform to ASTM C618 and C311.
 2. Natural pozzolans (raw or calcined) shall conform to ASTM C1945 and C311.
 3. Slag cement shall conform to ASTM C989.
 4. Silica Fume shall conform to ASTM C1240
 5. In lieu of 20% minimum addition of SCM, slag cement will be permitted as a mineral admixture. Use a minimum of 35% slag cement. Class F Coal Ash or Class N Pozzolan may be used in conjunction with slag cement at a rate of 15% by mass of the total cementitious material. The maximum total mineral admixture substitution shall be 50% of the total cementitious materials. The cost of furnishing tested coal ash and pozzolans shall be considered as included in the contract price.
 6. SCMs shall be handled and stored in the same manner as other cementitious materials. When facilities for handling bulk are not available, the SCM shall be delivered in original unopened sacks bearing the name, brand of supplier, the type, and the source of the SCM. The weight contained in each sack shall be clearly marked.

REQUIREMENTS

729.02.01 REQUIREMENTS

- A. Coal ash shall conform to ASTM C618 for Class F, with the following exceptions:
1. The maximum loss of ignition shall be 6 percent.
 2. The sulfate resistance factor, R, shall not exceed 1.5, where

$$R = \frac{(\% \text{ CaO} - 5)}{\% \text{ Fe}_2\text{O}_3}$$
- B. Certification that the coal ash used in Portland cement concrete conforms to ASTM C618 shall be provided by the supplier of the coal ash.
- C. Certification that the pozzolan used in Portland cement concrete conforms to ASTM C1945 shall be provided by the supplier of the pozzolan.
- D. Certification that the slag cement used in Portland cement concrete conforms to ASTM C989 shall be provided by the supplier of the slag cement.
- E. Certification that the silica fume used in Portland cement concrete conforms to ASTM C1240 shall be provided by the supplier of the silica fume.

- F. Copies of the certification shall be provided to the Engineer by the supplier of the SCM or supplier of the Portland cement concrete upon request.
- G. The certification provided is to be a maximum of 30 days old.
- H. Natural Pozzolans shall be Class N.
 - 1. The maximum natural pozzolans shall be 25% for concrete strengths greater than 4,500 PSI.
 - 2. Certification shall be provided with each new shipment and be at maximum 30 days from time of delivery.
 - 3. Maximum loss of ignition shall be 10%.
 - 4. Laboratory's furnished test data must be in compliance with Cement and Concrete Reference Laboratory (CCRL) of the National Institute of Standards and Technology (NIST). Manufacturer must provide production test data upon request.

PHYSICAL PROPERTIES AND TESTS

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