



## MATERIAL SPECIFICATION FOR CEMENTING MATERIALS

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#### 1301.01 SCOPE

This specification covers the requirements for cementing materials together with the method of sampling, testing, delivery, handling and storage, prior to use.

#### 1301.02 REFERENCES

This specification refers to the following standards, specifications or publications:

##### **Ontario Provincial Standard Specification, Material**

OPSS 1350 Concrete - Materials and Production

Designated Sources for Materials (DSM)

##### **CSA Standards**

A3001-23 Cementitious Materials for Use in Concrete\*

\* [Part of A3000-23- Cementitious Materials Compendium]

### 1301.03

### DEFINITIONS

For the purpose of this specification, the following definitions apply:

**Cementing Material** means a product having hydraulic or pozzolanic properties that is used as a binder to make concrete or mortar. Portland cement, blended hydraulic cement, Portland limestone cement, supplementary cementing materials and blended supplementary materials are examples of cementing materials.

**Slag** means ground granulated blast furnace slag, Type S.

**Fly Ash** means the finely divided residue that results from the combustion of pulverized coal or a combination of pulverized coal blended with up to 30% by mass of petroleum coke and that is carried from the combustion chamber of a furnace by exhaust gases, Types F, CI or CH except reclaimed fly ash

**Silica Fume** means the finely divided residue, resulting from the production of silicon or ferrosilicon alloys, that is carried from the burning area of a furnace by exhaust gases. The silica fume shall contain a minimum of 80% SiO<sub>2</sub>.

### 1301.04

### DESIGN AND SUBMISSION REQUIREMENTS

#### 1301.04.01

#### Submissions

##### 1301.04.01.01

#### Cementing Materials

The following documentation shall be submitted to the Contract Administrator a minimum of 7 Days prior to use of the cementing material:

- a) Product name;
- b) The cementing material supplier's name;
- c) The cementing material manufacturer's name;
- d) Type of the cementing material;
- e) Location of the mill;
- f) A test report from a qualified laboratory, which includes the following:
  - i. All the physical and chemical test requirements of CSA A3001, including the test for false set if the product is Portland cement or Portland limestone cement. The test report shall be accompanied by a letter from the Technical Services Representative of the cement supplier certifying that the cementing materials are according to the physical and chemical requirements of CSA A3001.
  - ii. The test requirements of this specification.
- a) If non-agitating trucks are used, a certificate from the cementitious material supplier verifying the cement is free from early stiffening tendencies.

Testing of cementing materials shall be carried out by a laboratory that has participated successfully in the Cement and Concrete Reference Laboratory's (CCRL) Laboratory Inspection Program (LIP) and CCRL's Proficiency Sample Program (PSP) for Portland Cement and Portland limestone cement (PLC). The CCRL Inspection Report shall be provided to the Owner upon request.

**1301.05 MATERIALS**

**1301.05.01 Cementing Materials**

Cementing materials shall be from the Ministry's DSM list and according to CSA A3001 requirements unless otherwise specified in Contract Documents.

Physical and chemical requirements of cementing materials shall be according to CSA A3001 including the optional requirements of CSA A3001 with the exception of the requirements for "Control of Expansion Due to Alkali-Silica Reactivity".

The cementing material shall be free of lumps or partially hydrated material.

At the time of delivery to the concrete producer and at the time of use, the temperature of cementing material shall not exceed 65 °C.

Where Portland cement, and Portland limestone cement is required to be certified as being free from early stiffening tendencies, the penetration shall be 50% or greater when determined according to CSA A3001.

**1301.07 PRODUCTION**

**1301.07.01 Packaging**

Bags used in the supply of packaged cementing materials shall be of such composition and quality as to provide protection from the elements and to withstand normal handling procedures.

**1301.07.02 Marking**

Cementing materials delivered in bags shall have the name of the supplier, and type of cementing material plainly marked on each bag.

Cementing material delivered in bags or in bulk shall be accompanied by a shipping invoice listing the following information:

- a) Product name;
- b) Type of cementing material;
- c) Name of the cementing material supplier;
- d) Name of manufacturer; and
- e) Location of mill.

**1301.07.03 Delivery and Storage**

Cementing material shall be protected from moisture and precipitation during delivery and storage.

Bagged cementing material shall be stored within a weather-tight building except that when the period of storage will not exceed 1 month, temporary protection by complete enclosure within tarpaulins or plastic sheets shall be permitted. Bags shall be stacked, clear of the ground, to provide a space for air circulation. Bagged cementing material stored in a building shall not be closer than 600 mm to the roof or walls.

**1301.08**                    **QUALITY ASSURANCE**

**1301.08.01**                **Acceptance of Cementing Materials**

Sampling, acceptance, and referee testing shall be according to OPSS 1350.

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