

**3902**

**3902  
Form Coating Material**

**3902.1 SCOPE**

This Specification covers coating material that will prevent bonding between a form, dowel, or other object and concrete.

**3902.2 REQUIREMENTS**

The form coating material shall meet the following requirements and also be approved by the Concrete Engineer. The form coating material shall be a chemical release agent containing no ordinary lubrication oil, conventional form oil, fuel oil, or kerosene. The form coating material shall prevent bonding to concrete; shall not penetrate, stain, or leave a residual film on the concrete surface; and shall not attract dirt or other deleterious matter.

The form coating material shall be applied at a rate recommended by the manufacturer that will provide a smooth surface free of dusting action caused by reactions of the chemical release agent.

The flash point of the chemical release agent shall be not less than 65°C (149°F).

**3902.3 SAMPLING AND TESTING**

**A Sampling**

Samples for testing shall be of such size and numbers as required by the Schedule of Materials Control.

**B Testing**

Flash Point..... ASTM D 92

**3906**

**Water for Concrete and Mortar**

**3906.1 SCOPE**

This Specification covers water for use in portland cement concrete and mortar.

**3906.2 REQUIREMENTS**

Water for use in mortar or concrete shall be subject to the approval of the Engineer. It shall not be salty or brackish and shall be reasonably clear and free from oil, acid, injurious alkali or vegetable matter.

When comparative tests are made with a water of known satisfactory quality, any indication of unsoundness, marked change in time of setting, or a reduction of more than 10 percent in mortar strength shall be sufficient cause for rejection of the water under test.

**3906.3 SAMPLING AND TESTING**

Samples for testing shall be as required by the Schedule of Materials Control. The quality of the water shall be determined in accordance with AASHTO T 26.

## 3911.2

In sampling water for testing, care shall be taken that the containers are clean and that samples are representative.

### 3910

#### Rock Salt

##### 3910.1 SCOPE

This Specification covers rock salt to be used as a deicer for road construction and maintenance purposes.

##### 3910.2 REQUIREMENTS

The quality and grading of the salt shall conform to ASTM D 632 for Type 1, Grade 1 material. At the time of delivery to the Department, the salt shall not contain more than 1.5 percent moisture, and it shall be free flowing and free of lumps, aggregations and foreign matter.

##### 3910.3 SAMPLING AND TESTING

###### A Sampling

The Department reserves the right to sample and inspect the salt at the Contractor's unloading and storage facilities or at the point of delivery to the Department.

###### B Testing

The chemical analysis for determination of sodium chloride content shall be made in accordance with the Rapid Method of Test for Sodium Chloride, as published in the Annex to ASTM D 632.

### 3911

#### Calcium Chloride

##### 3911.1 SCOPE

This Specification covers liquid and solid calcium chloride for use in dust control accelerating the hardening of concrete and other purposes.

##### 3911.2 GENERAL REQUIREMENTS

Calcium chloride shall be in liquid or solid form, as specified in the Contract, and shall conform to AASHTO M 144 for the type and grade specified. Unless otherwise authorized, liquid calcium chloride shall contain a minimum of 38 percent, by mass (weight), anhydrous  $\text{CaCl}_2$ . The solution shall be clear and free of solid matter.

**3911.3**

**3911.3 SAMPLING AND TESTING**

**A Sampling**

Sampling shall be according to ASTM D 345. Calcium chloride shall be sampled at the rate of one 1 kg (**2 pounds**) sample of solid material and 0.5 L (**1 pint**) of liquid material for each shipment or lot. Sample containers shall be well sealed plastic jars.

**B Testing**

Calcium chloride, CaCl<sub>2</sub>.....Atomic Absorption Method (A)  
Alkali chlorides .....ASTM E 449

(A) Test Method on file in the Chemical Laboratory of the Office of Materials

**3912**

**Magnesium Chloride Solution**

**3912.1 SCOPE**

This Specification covers magnesium chloride solution used for dust control.

**3912.2 REQUIREMENTS**

The magnesium chloride solution shall be water clear, thoroughly mixed, free from any solid matter or deleterious substances. The solution solids shall consist primarily of magnesium chloride.

**Chemical Composition**

Magnesium chloride, anhydrous, percent minimum ..... 28.0  
Sulfate, as SO<sub>4</sub>, percent maximum ..... 3.5  
Alkali chlorides, as NaCl, percent maximum ..... 5.0

**3912.3 SAMPLING AND TESTING**

**A Sampling**.....

Magnesium chloride shall be sampled at the rate of 0.5 L (**1 pint**) sample per load. Sampling procedure shall be according to ASTM D 345. Sampling containers shall be well sealed plastic jars.

**B Testing**

Magnesium chloride, MgCl<sub>2</sub>.....ASTM E 449 Modified (A)  
Sulfate SO<sub>4</sub>..... Gravimetric precipitation with BaCl<sub>2</sub>  
Alkali chlorides ..... ASTM E 449 (or flame emission)

(A) Test Method on file in the Chemical Laboratory of the Office of Materials.

**3917**  
**Concrete Treating Oil**

**3917.1 SCOPE**

This Specification covers two types of mixtures to be applied as a protective coating on concrete. Unless otherwise specified, the type used shall be optional with the Contractor.

**3917.2 REQUIREMENTS**

**A Type I**

Type I concrete treating oil shall consist of a mixture of equal parts, by volume, of:

- (a) Mineral spirits conforming to ASTM D 235.
- (b) Neutral petroleum oil (plain) having a viscosity of 75-100 SUS at 38°C (100°F).

**B Type II**

Type II concrete treating oil shall consist of a mixture of boiled linseed oil and petroleum spirits conforming to AASHTO M 233.

**3917.3 SAMPLING AND TESTING**

- A Sampling and testing boiled linseed oil.....ASTM D 260**
- B Tests for mineral spirits .....ASTM D 235**
- C Sampling petroleum products .....ASTM D 4057**
- D Viscosity .....ASTM D 445**