SECTION 1007 -- CHEMICAL ADMIXTURES

1007.01 -- Description

1. Admixtures are materials added to portland cement concrete to change characteristics such as workability, strength, imperviousness, freezing point, and curing.

2. The Department's concrete admixture types are:

a. Type A - Water-Reducing Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump.

b. Type B - Retarding Admixture - An admixture that slows down the setting of concrete.

c. Type C - Accelerating Admixture - An admixture that speeds up the setting and early strength development of concrete.

d. Type D - Water-Reducing and Retarding Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump and slows down the setting of concrete.

e. Type E - Water-Reducing and Accelerating Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump and speeds up the setting and early strength development of concrete.

f. Type F - Water-Reducing, High Range Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump by 12 percent or greater.

g. Type G - Water-Reducing, High Range and Retarding Admixture - An admixture that reduces the quantity of mixing water required to produce concrete of a given slump by 12 percent or greater and slows down the setting of concrete.

h. Air-Entraining - An admixture that encapsulates air in the concrete.

1007.02 -- Material Characteristics

1. Type A through G admixtures shall meet the requirements in ASTM C 494.

2. Air-entraining admixtures shall meet the requirements in ASTM C 260.

3. Use of admixtures other than those cited may be requested by the Contractor.

4. Admixtures shall not contain more than 1 percent of chlorides calculated as calcium chloride.

5. Admixtures shall be used at the manufacturer's recommended dosage rates.

6. The air-entraining admixture characteristics shall produce concrete with satisfactory workability and a total air content as prescribed in Table 1002.02.

1007.03 -- Procedures

1. a. The process for adding admixtures to a ready mix truck on the project site involves positioning the load of concrete up to the truck chute, stopping short of discharge.

b. The admixture is then poured over the surface of the concrete and mixed for at least 5 minutes.

c. No more than 5 L of water shall be used to rinse the admixture from the fins and top chute. This water must be shown on the proportioning report.

d. The Contractor is responsible for the addition of the admixture.

2. a. If the air content is less than the minimum specified, only one addition of air-entraining admixtures is allowed.

b. If the air content is then outside the limits in Table 1002.02, the load of concrete shall be rejected.

1007.04 -- Acceptance Requirements

1. Admixture approval shall be based upon annual certifications and certified test results submitted to the NDR Materials and Tests Division.

2. a. Approved chemical admixtures are shown on the NDR Approved Products List.

b. Every 5 years, suppliers must perform product testing as prescribed in ASTM C 494, Paragraph 1.3.2. level 2 and submit a report of the testing to the NDR Materials and Tests Division.

3. The admixture must be essentially identical in concentration, composition, and performance to the admixture tested for certification.

4. Admixtures not identified on the NDR Approved Products List may be used under the following conditions:

a. A certificate of compliance and certified test results must be submitted to the NDR Materials and Tests Division, and;

b. Approval for use must be given by the NDR Materials and Tests Division.