METHOD OF TEST FOR NON-VOLATILE CONTENT OF CHEMICAL ADMIXTURES, LATEX ADMIXTURES AND CURING COMPOUNDS

1. SCOPE

1.1 This method covers the determination of non-volatile content (%) for concrete chemical admixtures (liquid), latex modifiers and curing compounds.

2. RELEVANT DOCUMENTS

2.1 ASTM C 494 18.2

2.2 ASTM D 1644

3. DEFINITION

3.1 Determination of the fraction of an admixture that is relatively stable at the temperature of the test while solvents are driven off.

4. CHEMICAL ADMIXTURES

4.1 PROCEDURE

Procedure of ASTM C 494, clause 18.2 shall be followed for determination of non-volatile content of chemical admixtures.

4.1.1 General

Two 0.75-litre samples of admixture shall be delivered to the laboratory for each test. One 0.75-litre sample shall be used for acceptance testing and the second 0.75-liter sample shall be reserved for referee testing.

Immediately after admixture samples are delivered to the testing laboratory, each bottle shall be properly identified by a laboratory number, and date and time of arrival noted.

4.1.2 Testing

One 0.75-litre sample shall be used for testing of non-volatile content and other properties, as required. The second 0.75-litre sample shall be stored, protected from freezing and high temperatures, until it is delivered to the designated referee laboratory or disposed of.

4.1.3 Procedure on Arrival at the Designated Referee Laboratory

Immediately after arrival of referee admixture sample at the designated referee laboratory, the sample shall be properly identified by a laboratory number, and date and time of arrival noted.

Testing of referee admixture sample shall be carried out according to this test method.

4.2 REPORTING OF RESULTS

The report shall include the non-volatile content of the chemical admixture to the nearest 0.1 percent.

5. LATEX ADMIXTURES

5.1 APPARATUS

5.1.1 Syringe without needle, 10 mL

5.1.2 Aluminum dishes - approximately 60 mm in diameter, 15 mm in depth, 2 g or less in mass, and disposable

5.1.3 Oven - ventilated, 140 ± 2°C, forced circulation type or one with provision for free access of air

5.1.4 Desiccator

5.1.5 Balance - accurate to 0.001 g

5.2 PROCEDURE

5.2.1 Weigh each of three aluminum dishes to nearest 0.001 g.

5.2.2 Thoroughly mix sample. Place a portion of mixed sample in a 10 mL syringe with needle and discharge 1.2 ± 0.1 g into each of the aluminum dishes. Record the mass of each dish plus sample to nearest 0.001 g.

5.2.3 By gently tilting, spread specimen over the bottom of the aluminum dish.

5.2.4 Heat in oven at 140 ± 2°C for 2 hours.

5.2.5 Remove from oven, cool in desiccator and weigh the dish.

5.3 CALCULATION

$$S = \frac{C - A}{B - A} \times 100$$

where S = Non-volatile content, percent
A = Mass of aluminum dish, g
B = Mass of aluminum dish and wet latex specimen, g
C = Mass of aluminum dish and dried specimen after heating, g

5.4 REPORTING OF RESULTS

The report shall include the non-volatile content of the latex admixture to the nearest 0.1 percent.

6. CURING COMPOUNDS

6.1 APPARATUS

6.1.1 Syringe without needle, 10 mL

6.1.2 Metal or glass dishes, approximately 80-100 mm in diameter, 5-15 mm in depth.

6.1.3 Oven-ventilated, 105 ± 2°C, forced circulation type or one with provision for free access of air.

6.1.4 Desiccator

6.1.5 Balance - Accurate to 0.001 g

6.2 PROCEDURE

6.2.1 Weigh each of three dishes to nearest 0.001 g.

6.2.2 Thoroughly mix sample by stirring in closed container. Avoid trapping air in sample.

6.2.3 Place representative sample in a 10 mL syringe without needle and discharge 1.2 g ± 0.1 g into each of the dishes.

Note 1: To control evaporation loss weigh syringe each time after discharge and record.

6.2.4 By gently tilting, spread specimen over the bottom of the aluminum dish.

6.2.5 Heat in oven at 105 ± 2°C for 3 hours.

6.2.6 Remove from oven, cool in desiccator, and weigh the dish.

Note 2: Three specimens constitute a test.

Note 3: If necessary, a piece of stout wire can be included in the tare of the dish and used at intervals to break up skins by stirring during the heating period.

6.3 CALCULATION

$$S = \frac{C - A}{B - A} \times 100$$

where S = Non-volatile content, percent

A = Mass of dish, g

B = Mass of dish and wet curing compound specimen, g

C = Mass of dish and dried specimen, after heating, g.

6.4 REPORTING OF RESULTS

The report shall include the non-volatile content of the curing compound to the nearest 0.1 percent.