

WSDOT FOP for AASHTO T 255¹

Total Evaporable Moisture Content of Aggregate by Drying

1. Scope

- 1.1 This test method covers the determination of the percentage of evaporable moisture in a sample of aggregate by drying, both surface moisture and moisture in the pores of the aggregate. Some aggregate may contain water that is chemically combined with the minerals in the aggregate. Such water is not evaporable and is not included in the percentage determined by this test method.
- 1.2 The values stated in English units are to be regarded as the standard. The values stated in parentheses are provided for information only.
- 1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. For specific precautionary statements, see 5.3.1, 7.2.1, and 7.3.1.*

2. Referenced Documents

2.1 AASHTO Standards

M 92 – Wire-Cloth Sieves for Testing Purposes

M 231 – Weighing Devices Used in Testing Materials

R 16 – Regulatory Information for Chemicals Used in AASHTO Tests

T 2 – Sampling of Aggregate

T 19/T 19M – Bulk Density (“Unit Weight”) and Voids in Aggregate

T 84 – Specific Gravity and Absorption of Coarse Aggregate

T 85 – Specific Gravity and Absorption of Fine Aggregate

2.2 ASTM Standards

C 125 – Terminology Relating to Concrete and Concrete Aggregates

C 670 – Practice for Preparing Precision Statements for Test Methods for Construction Materials

3. Terminology

3.1 Definitions

- 3.1.1 For definitions of terms used in this test method, refer to ASTM C 125.

¹This FOP is based on AASHTO T 255-00.

4. Significance and Use

- 4.1 This test method is sufficiently accurate for usual purposes, such as adjusting batch quantities of ingredients for concrete. It will generally measure the moisture in the test sample more reliably than the sample can be made to represent the aggregate supply. In rare cases where the aggregate itself is altered by heat, or where more refined measurement is required, the test should be conducted using a ventilated, controlled temperature oven.
- 4.2 Large particles of coarse aggregate, especially those larger than 2 in (50 mm), will require greater time for the moisture to travel from the interior of the particle to the surface. The user of this test method should determine by trial if rapid drying methods provide sufficient accuracy for the intended use when drying large size particles.

5. Apparatus

- 5.1 Balance – The balances shall have sufficient capacity, be readable to 0.1 percent of the sample mass, or better, and conform to the requirements of M 231.
- 5.2 Source of Heat – A ventilated oven capable of maintaining the temperature surrounding the sample at $110 \pm 5^{\circ}\text{C}$ ($230 \pm 9^{\circ}\text{F}$). Where close control of the temperature is not required (see Section 4.1), other suitable sources of heat may be used, such as an electric or gas hot plate, electric heat lamps, or a ventilated microwave oven.
- 5.3 Sample Container – A container not affected by the heat, and of sufficient volume to contain the sample without danger of spilling, and of such shape that the depth of sample will not exceed one fifth of the least lateral dimension.

- 5.3.1 Precaution – When a microwave oven is used, the container shall be nonmetallic.

Note 1: Except for testing large samples, an ordinary frying pan is suitable for use with a hot plate, or any shallow flat-bottomed metal pan is suitable with heat lamps or oven. Note Precaution in Section 5.3.1.

- 5.4 Stirrer – A metal spoon or spatula of convenient size.

6. Sampling

- 6.1 Sampling shall generally be accomplished in accordance with FOP for AASHTO T 2, except for the sample size may be as stated in Table 1.
- 6.2 Secure a sample of the aggregate representative of the moisture content in the supply being tested and having a mass not less than the amount listed in Table 1. Protect the sample against loss of moisture prior to determining the mass.