Standard Method of Test for

Abrasion Resistance of Open Graded Friction Course (OGFC) Mixtures

SCDOT Designation: SC-T-127 (12/13)

1. SCOPE

1.1 This method outlines the procedure to estimate the abrasion resistance (commonly referred to as Cantabro) of laboratory compacted asphalt concrete specimens. This procedure is applicable to OGFC mixtures.

2. REFERENCED DOCUMENTS

2.1 AASHTO Test Procedures: T 96

2.2 SC Test Procedures: T-90, T-103, T128

3. APPARATUS

3.1 Balance, meeting the requirements of AASHTO M 231, sufficient size to weigh gyratory specimens, sensitive to 0.1 gm.

3.2 LA Abrasion machine as required in AASHTO T96.

3.3 Thermometer, glass or thermocouple with accuracy of +/- 1°F.

4. TEST SPECIMENS

4.1 Determine optimum binder content per SC-T-90.

4.2 Compact 150mm gyratory specimens in the laboratory to a final height of 115±5 mm using 50 gyrations at targeted field compaction temperature in accordance to SC-T-103. At least two specimens are required per mixture being tested.

5. PROCEDURE

5.1 Measure the porosity of each specimen in accordance with SC-T-128.

5.2 Dry specimens for a minimum of 48 hours at 100 +/- 5° F to remove water collected during the porosity tests, remove and allow to cool to room temperature for a minimum of 4 hours prior to testing abrasion resistance. Core dry devises can be used in lieu of drying to get samples back to constant mass.

5.3 Record the weight of the specimen to the nearest 0.1g (W_1).

5.4 Place the specimen in the clean LA abrasion drum without any steel spheres. Start the machine, and allow it to run for 300 revolutions. The drum shall rotate at a rate of 30 to 33 revolutions per minute.

5.6 After 300 revolutions, remove the specimen from the drum and lightly brush it off to remove any loose particles and dust.

5.7 Record the weight of the specimen to the nearest 0.1g (W_2).

6. CALCULATIONS

6.1 Calculate the loss due to abrasion of each specimen using the equation below.

$$\%\ Loss = \frac{W_1 - W_2}{W_1} \times 100\%$$

6.2 Calculate the average *% Loss* of all specimens tested. In the event that the measured abrasion values differ more than 5% from one another, a third sample must be run, and the average of the abrasion results will be calculated using the two closest abrasion values.

7. REPORT

7.1 Porosity of each specimen to the nearest 0.1%.

7.2 Mass of each specimen before testing (W_1) and after testing (W_2) to the nearest 0.1g.

7.3 *% Loss* for each specimen and the average *% Loss* for all specimens to the nearest 0.1%.