Method of Test For
DETERMINING THE EFFECT OF MOISTURE ON ASPHALT CONCRETE PAVING MIXTURES

DOTD Designation: TR 322

This method of test is designed to prepare and test asphalt concrete specimens to measure the effect of moisture on the tensile strength of the mixture. The potential for moisture damage is indicated by the tensile strength ratio (TSR), expressed as a percent of the tensile strength of a moisture-conditioned set of specimens to that of a control set of specimens. This method of test is used to evaluate lab or plant-produced mixtures to determine conformance with specification requirements during Job Mix Formula (JMF) design, validation and production. When used for the purpose of JMF validation or production, this test shall be run on specimens made from plant produced mix.

DOTD TR 322 is identical to ASTM D4867 except for the following provisions:

A. Section 2, Reference Documents is amended to include:

AASHTO T 312 – Standard Method of Test for Preparing and Determining the Density of Asphalt Mixture by Means of the Superpave Gyratory Compactor
DOTD TR 304 – Determination of Specific Gravity and Density Characteristics of Compressed Asphalt Mixtures
DOTD TR 327 – Theoretical Maximum Specific Gravity of Asphalt Concrete Mixtures

B. Section 5, Apparatus, is amended to include:

5.9 Freezer – a manual-defrosting chest type freezer capable of maintaining a temperature of -18 +/- 2 °C (0 +/- 3.6 °F).

C. Section 6, Preparation of Laboratory Test Specimen is amended to include:

6.2 This section is replaced with the following: "Use 150 mm (6 in.) diameter and 100 mm (4 in.) thick specimens.
6.6 This section is modified to include reference to AASHTO T 312.

D. Section 8, Procedure, Section 8.1, 8.3, and 8.7 are replaced with the following:

8.1 Determine the theoretical maximum specific gravity in accordance with DOTD TR 327.
8.3 Determine the bulk specific gravity in accordance with DOTD TR 304.
8.7 Subject the specimens to freeze-thaw conditioning as described in Note 6.

E. Section 10, Report, is replaced with the following:

10.1 Report the following information:
10.1.1 Job Mix Formula sequence number and mix code, number of gyrations / weight, plant type, and lot number (when applicable)
10.1.2 Job Mix Formula maximum theoretical specific gravity, Gmm
10.1.3 Average percent air voids of each set, moisture-conditioned and control
10.1.4 Tensile strength of each specimen in each set, moisture-conditioned and control
10.1.5 Average tensile strength of each set, moisture-conditioned and control
10.1.6 Tensile Strength Ratio, expressed as a percentage

Normal Test Reporting Time is 3 days.