

MATERIALS LABORATORY
ODOT Test Method 432-05
Method of Test for
Bond Strength of Flexible Bituminous Adhesive

PURPOSE

- 1.1 This method describes a procedure for determining the bond strength of Bituminous adhesive when used to adhere a type 1 reflective raised pavement marker to a 2 3/8" (60mm) steel test plug. The reported strength shall be the average of 3 separate test results.

APPARATUS

- 2.1 Raised Pavement Marker – ODOT type I reflective.
- 2.2 Round 2 3/8"(60mm) diameter steel test plug, 1 1/4" (32mm) long, sandblasted on one end and with a 1/2 " threaded hole in the other end.
- 2.3 Tensile testing machine capable of applying a load of 0.2 in/min and conforming to the requirements of ASTM Practice E4.
- 2.4 Oven or melter capable of heating the material to the manufacture recommended application temperature.
- 2.5 Oven capable of holding temperature of 110 +/- 5C

PROCEDURE

- 3.1 Obtain a representative sample as per ASTM 5167, section 8.1.2
- 3.2 Melt the sample and bring to manufactures recommend application temperature stirring sample occasionally to ensure a homogenous sample.
- 3.3 Condition the steel plugs and reflective markers in the 110 +/- 5C oven for a minimum of 1 hour before bonding.
- 3.4 Pour the hot melt adhesive onto the conditioned marker in sufficient quantity to squeeze out a small bead around the entire periphery of the steel plug. (Approximately 2 1/2" diameter of adhesive on marker)
- 3.5 The heated plug will immediately be firmly pressed onto the hot melt adhesive, squeezing out the excess adhesive.
- 3.6 Remove excess adhesive squeezed out from around the diameter of the steel plug.
- 3.7 Allow sample to cure 24 +/- 2 hrs.
- 3.8 After curing, marker and plug shall be placed in the tensile testing apparatus and mounted in the tensile testing machine.
- 3.9 Begin tensile testing at the rate of 0.2in/min.

3.10 Record peak load.

4. CALCULATION

Bond strength = L/A

L = Max load (Peak load) lbs

A = Surface area Sq. in.

5. REPORT

The reported bond strength shall be the average of three separate test results.