Washington State
Department of Transportation

WSDOT Test Method T 432

Flexibility Test for Hot-Melt Adhesives

1. Scope

   This method describes the determination of flexibility of hot-melt adhesives under specific conditions.

2. Referenced Documents

   a. WSDOT SOP 318 – Standard Operating Procedure for Melting of Bituminous Pavement Marker Adhesive.

   b. ASTM D3111 – Standard Test Method for Flexibility of Hot-Melt Adhesives by Mandrel Bend Test Method – modified to meet WSDOT specification.

3. Apparatus and Materials

   a. 1″ diameter Mandrel and holder.

   b. Three-specimen stainless steel flexibility mold, 1/8″ x 1″ x 6″ dimensions.

4. Procedure

   a. Adhesive material is melted and prepared by Liquid Asphalt lab per WSDOT SOP 318.

   b. Test specimens poured into the flexibility mold.

   c. Test specimens allowed to cure at room temperature for at least one hour.

   d. The test specimens removed from the mold and conditioned at 20°F for minimum of four hours.

   e. The 1″ diameter Mandrel and its holder are also conditioned at 20°F for minimum of four hours.

f. Flexibility test is done in the same environment used to condition the specimens, by bending each specimen over the 1″ Mandrel in an arc of 90° at a uniform rate for ten seconds.

5. Report

   Flexibility shall be reported as Pass/Fail. Failure is a visible fracture, crazing, or cracking of the hot-melt adhesive that can occur at any time during the bending of two out of the three specimens.