Designation: D8260 – 20

Standard Specification for Hot-Applied Asphalt Aggregate-Filled Mastic[1]

This standard is issued under the fixed designation D8260; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers hot-applied asphalt aggregate-filled mastics for repairing distresses in asphalt pavements and hydraulic concrete pavements. These distresses include, but are not limited to: depressions, wide cracks not suitable for crack sealing, pot holes, corner breaks and longitudinal joint distresses, and other repairs smaller than those requiring remove and replace procedures.

1.2 The values stated in SI units are to be regarded as standard. No other units are included in this standard.

1.3 The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

1.4 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

C1305/C1305M Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane

D1985 Practice for Preparing Concrete Blocks for Testing Sealants, for Joints and Cracks

D2794 Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)

D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

D4989/D4989M Test Method for Apparent Viscosity (Flow) of Roofing Bitumens Using the Parallel Plate Plastometer

E171/E171M Practice for Conditioning and Testing Flexible Barrier Packaging

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *aggregate-filled mastic, n*—voidless asphalt mix with an aggregate size smaller than 12.7 mm and pourable at application temperature under the force of gravity.

4. Significance and Use

4.1 This specification describes procedures for determining specification conformance for hot-applied asphalt aggregate-filled mastics.

NOTE 1—The quality of the results produced by this standard are dependent on the competence of the personnel performing the procedure and the capability, calibration, and the maintenance of the equipment used. Agencies that meet the criteria of Specification D3666 are generally considered capable of competent and objective testing, sampling, inspection, etc. Users of this standard are cautioned that compliance with Specification D3666 alone does not completely ensure reliable results. Reliable results depend on many factors; following the suggestions of Specification D3666 or some similar acceptable guideline provides a means of evaluating and controlling some of those factors.

5. Standard Conditions

5.1 The laboratory atmospheric conditions, hereinafter referred to as standard conditions, shall be as detailed in Practice E171/E171M: 23 ± 2 °C and 50 ± 10 % relative humidity. The material shall be conditioned 24 h at standard conditions before melting or heating.

6. General Requirements

6.1 The hot-applied asphalt aggregate-filled mastic shall be composed of a mixture of binder and aggregate and will form a resilient, stable, and adhesive compound capable of effectively repairing or alleviating (or both) the distresses in pavements so that the ride quality is improved or the pavement life is extended (or both). The material shall be capable of being brought to the application temperature without segregation, will pour easily from a gravity-fed field melter, and is suitable for completely filling the area without inclusion

[1] This specification is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.33 on Formed In-Place Sealants for Joints and Cracks in Pavements.

Current edition approved Jan. 1, 2020. Published January 2020. DOI: 10.1520/D8260-20.

[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

of large air holes or discontinuities. The material shall remain relatively unchanged in application characteristics for at least 6 h at the maximum heating temperature in the field.

7. Physical Requirements

7.1 *Maximum Heating Temperature*—The maximum heating temperature is the highest temperature to which mastic can be heated and still conform to all the requirements specified herein. For purposes of testing as specified hereinafter, the application temperature shall be the same as the maximum heating temperature. The maximum heating temperature shall be set forth by the manufacturer, shall be shown on all containers, and shall be provided to the testing agency before any laboratory tests are begun.

7.2 The material shall conform to the requirements prescribed in Table 1 when heated to the maximum heating temperature.

8. Sampling and Heating

8.1 *Sampling:*

8.1.1 Samples may be taken at the plant or warehouse prior to delivery or at the time of delivery, at the option of the purchaser. If sampling is done prior to shipment, the inspector representing the purchaser shall have free access to the material to be sampled. The inspector shall be afforded all reasonable facilities for inspection and sampling which shall be conducted so as not to interfere unnecessarily with the operation of the works.

8.1.2 Samples shall consist of two of the manufacturer's original sealed containers selected at random from the lot or batch of finished material. A batch or lot shall be considered as all finished material that was manufactured simultaneously or continuously as a unit between the time of compounding and the time of packaging or placing in shipping containers.

8.1.3 One entire container of aggregate and binder shall be placed in a mixing vessel or bucket used in any type of mechanical asphalt mixer; the mixing vessel shall be large enough to accommodate an entire container of aggregate and binder.

8.2 *Heating:*

8.2.1 The mixing vessel with sample shall be placed in a thermostatically controlled, forced-draft oven; the forced-draft oven shall be capable of maintaining the specified test temperature ±1 °C and large enough to accommodate the mixing vessel. The oven shall be able to bring the material temperature to within 18 °C of the maximum heating temperature within 6 h of placement in the oven. Do not go over the maximum heating temperature; otherwise discard the material. It is recommended to set the temperature of the oven between the application temperature and 10 °C above it. Stir as needed to ensure thorough heating.

8.2.2 Once the sample is within 18 °C of the maximum heating temperature in the mixing vessel, it will be thoroughly mixed by mechanical means while heating until all particles of aggregate are fully coated and aggregate is dispersed evenly throughout to the maximum heating temperature. Do not heat with a direct flame. Material must reach maximum heating temperature within 1 h. Immediately upon reaching the maximum heating temperature, pour all specimens for testing directly. Finish all required testing within a week.

9. Test Methods

9.1 *Mastic Resilience:*

9.1.1 *Scope*—This test method measures the ability of mastic to recover after being compressed to a fixed thickness. Since a precision estimate for this standard has not been developed, the test method is to be used for research and informational purposes only. Therefore, this standard should not be used for acceptance or rejection of a material for purchasing purposes.

9.1.2 *Significance and Use*—To function properly, the mastic material must recover after compression and maintain internal adhesion between the binder and the aggregate.

9.1.3 *Apparatus:*

9.1.3.1 *Load Frame,* or hydraulic press capable of maintaining a crosshead speed of approximately 50 mm/min under maximum load, with a minimum travel distance of 25 mm.

9.1.3.2 *Platens,* two. Steel, circular, or square, with attachment points suitable to the load frame or hydraulic press used for the test. Circular 152 mm minimum diameter, 6.4 mm minimum thickness; or square 152 mm minimum width and height, 6.4 mm minimum thickness.

9.1.3.3 *Ring Molds,* steel or brass, 66 ± 0.2 mm inside diameter, 2 mm minimum wall thickness, 25 ± 0.4 mm in height.

9.1.3.4 *Spacers,* two each. Steel, aluminum, or brass; height 12.5 ± 0.2 mm, width 12.5 ± 0.2 mm, 25 to 68 mm in length.

9.1.3.5 *Outside Calipers,* accurate to at least ±0.1 mm.

9.1.3.6 *Laboratory Gas Burner.*

9.1.3.7 *Trimming Tool,* straight edge, steel, 100 mm minimum blade width.

9.1.3.8 *Release Agent*—Silicone grease, glycerin/talc mixture, or other suitable non-petroleum material.

9.1.3.9 *Release Paper,* suitable for release after test.

TABLE 1 Material Requirements

	Type 1	Type 2	Type 3
Mastic Resilience	50 % minimum	50 % minimum	50 % minimum
Effects of Rapid Deformation	3 passing specimens no chipping, cracking, or separation 8 N-m –7 °C	3 passing specimens no chipping, cracking, or separation 8 N-m –18 °C	3 passing specimens no chipping, cracking, or separation 8 N-m –29 °C
Crack Bridging	3 cycles –7 °C	3 cycles –18 °C	3 cycles –29 °C
Mastic Stability	40.0 mm maximum 70 °C	40.0 mm maximum 60 °C	40.0 mm maximum 50 °C