
Standard Specification for

Use of Reclaimed Asphalt Shingles as an Additive in Hot Mix Asphalt (HMA)



AASHTO Designation: MP 15-09 (2011)¹

1. SCOPE

- 1.1. This specification covers reclaimed asphalt shingle material used as an additive in hot mix asphalt (HMA). The use of reclaimed asphalt shingles in hot-in-place pavements, cold-in-place pavements, and cold recycled pavements is not included in this specification.
- 1.2. The values stated in SI units are to be regarded as the standard.
- Note 1**—Refer to PP 53 for information on mix design, determining shingle aggregate gradation, and binder considerations when designing HMA mixtures that incorporate reclaimed asphalt shingles as an additive.
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2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
- M 29, Fine Aggregate for Bituminous Paving Mixtures
 - M 320, Performance-Graded Asphalt Binder
 - M 323, Superpave Volumetric Mix Design
 - R 59, Recovery of Asphalt Binder from Solution by Abson Method
 - PP 53, Design Considerations When Using Reclaimed Asphalt Shingles (RAS) in New Hot Mix Asphalt (HMA)
 - T 2, Sampling of Aggregates
 - T 30, Mechanical Analysis of Extracted Aggregate
 - T 164, Quantitative Extraction of Asphalt Binder from Hot Mix Asphalt (HMA)
 - T 319, Quantitative Extraction and Recovery of Asphalt Binder from Asphalt Mixtures
- 2.2. *ASTM Standards:*
- C 125, Standard Terminology Relating to Concrete and Concrete Aggregates
 - D 692/D 692M, Standard Specification for Coarse Aggregate for Bituminous Paving Mixtures
- 2.3. *Other Standard:*
- Code of Federal Regulations Title 40 Chapter 1 Subchapter C Part 61 Subpart M (40 CFR 61 Subpart M), National Emission Standard for Asbestos
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3. TERMINOLOGY

- 3.1. The definition of coarse and fine aggregate in terms of bituminous paving mixtures is provided in M 29 and ASTM C 125 and D 692.

- 3.2. *manufactured shingle waste*—for the purpose of this specification, shall mean rejected asphalt shingles or shingle tabs that are discarded in the manufacturing process of new asphalt shingles.
- 3.3. *post-consumer asphalt shingles*—for the purpose of this specification, shall mean asphalt shingles that are removed from the roofs of residential dwellings, as defined by the U.S. Environmental Protection Agency’s National Emission Standards for Hazardous Air Pollution (NESHAP), 40 CFR 61 Subpart M, when new roofs are being installed. Post-consumer asphalt shingles are often called “tear-off” shingles.
- 3.4. *reclaimed asphalt shingles*—for the purpose of this specification, shall mean either manufactured shingle waste or post-consumer asphalt shingles that have been processed into a product that meets the requirements of this standard.
- 3.5. *shingle asphalt binder*—for the purpose of this specification, shall mean the asphalt binder that is present in the reclaimed asphalt shingles.
- 3.6. *shingle aggregate*—for the purpose of this specification, shall mean mineral granules, sand, or other mineral matter present in the reclaimed asphalt shingles, excluding the shingle fiber content.
- 3.7. *shingle fiber*—for the purpose of this specification, shall mean glass felt, paper felt, foil, and fabrics or films used as the structural basis of asphalt shingles and other asphalt roofing products.
- 3.8. *virgin asphalt binder*—for the purpose of this specification, shall mean new performance-graded asphalt binder to be used in the new HMA.
- 3.9. *final blended binder*—for the purpose of this specification, shall mean the mixture of virgin asphalt binder and shingle asphalt binder.
- 3.10. *virgin aggregate*—for the purpose of this specification, shall mean coarse and fine aggregate introduced into new HMA that is exclusive of the shingle aggregate.
- 3.11. *new HMA*—for the purpose of this specification, shall mean HMA manufactured using aggregates, recycled asphalt pavement (if used), virgin asphalt binder, and reclaimed asphalt shingles.

4. ORDERING INFORMATION

- 4.1. The purchaser or specifier shall include the following information in the purchase order or contract documents:
- 4.1.1. Reference to this specification and year of issue;
- 4.1.2. Additional testing requirements; and
- 4.1.3. Any exceptions to this specification.

5. SOURCES AND SAMPLING

- 5.1. Reclaimed asphalt shingles may be derived from either manufactured shingle waste or from post-consumer asphalt shingles (see Note 2).