
Standard Practice for Emulsified Asphalt Fog Seal Design

AASHTO Designation: R 105-22¹

Adopted: 2022

Technical Subcommittee: 5b, Bridge and Pavement Preservation



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1. SCOPE

- 1.1. This standard determines an ideal application rate of emulsified asphalt for use as a fog seal.
- 1.2. A fog seal is the light application of emulsified asphalt to the pavement surface, which may be used to provide a surface seal, arrest light raveling, or create color contrast between traffic lanes and shoulders to improve visibility. Fog seals are also applied to newly placed chip seals to lock in loose chips and provide a more aesthetically pleasing finished product.
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2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
- M 140, Emulsified Asphalt
 - M 208, Cationic Emulsified Asphalt
 - M 316, Polymer-Modified Emulsified Asphalt
 - M 343, Materials for Emulsified Asphalt Fog Seal
 - T 304, Uncompacted Void Content of Fine Aggregate
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3. SIGNIFICANCE AND USE

- 3.1. This standard may be used to establish the ideal application rate, residual rate, or quantity of emulsified asphalt required for the construction of emulsified asphalt fog seals.
- 3.2. Fog seals may be applied to a number of different pavement surface types. Common uses include sealing dense-graded asphalt mixtures, preventing raveling on open-graded asphalt mixtures locking down aggregates on new chip seals, or sealing shoulders to improve contrast for nighttime visibility. Although slow-setting emulsified asphalts are most commonly used for fog seals, emulsified asphalt type, dilution ratio, and application rate vary markedly among the common applications. Climate, traffic, and local preferences also play important roles in selecting emulsified asphalt type and grade. For details regarding materials selection, refer to M 343.
- 3.3. *Dilution*—Emulsified asphalts used as fog seals are typically diluted 1:1 by weight with water or a compatible surfactant solution before application. The final diluted product shall be a fluid, homogeneous mixture that does not plug distributor nozzles. The minimum residue content for emulsified asphalts used as fog seal will typically be 50 percent of undiluted emulsified asphalt. Slow-setting emulsified asphalts can be diluted with water. All other emulsified asphalt types must be diluted at the manufacturer's plant site using a surfactant solution compatible with the emulsified asphalt. The bill of lading shall include the minimum asphalt residue percentage of the material delivered.