Construction Guide Specification for Emulsified Asphalt Fog Seal

Specification
AASHTO Construction Guide Specification 410

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Description
This guide specification is intended to provide information needed for owners or contractors to construct emulsified asphalt fog seals. An emulsified asphalt fog seal is the application of emulsified asphalt, either diluted or undiluted, to a surface and may be immediately followed by a light application of blotter sand.

Terminology
The terminology in this specification covers the two most typical grades of emulsified asphalt used in fog seal applications.

Materials
- Emulsified Asphalt: That meet the requirements of AASHTO M 140 or M208. Table 2 covers typical application rates.
- Blotter Aggregate: When used, should adhere to Table 1. Normal application rate can vary from 1-3lbs/yd^2.

Construction
Equipment: Asphalt Distributor, Aggregate Spreader, Broom.
Equipment Calibration
Tolerance and methods of calibrating distributors and aggregate spreaders.
Preconstruction Meeting
Importance of a preconstruction meeting prior to construction to discuss specific topics listed.
Road Surface Preparation
Sweep pavement no more than 30 min before application of emulsion and aggregate.
Remove thermoplastic pavement markings.
Application
Addresses topics: Weather limitations, test strips, and the application of the materials; longitudinal and transvers joint construction methods; traffic control and protection of motor vehicles.
Quality Control
Outline of roles for quality staff, testing facilities, stockpile management, calibration and workmanship. Requires certification of crew members.
Agency Acceptance Activities
Inspection overview, materials acceptance testing, and final inspection recommendations.

Measurement
- Emulsion by volume
- Aggregate by area (or weight)

Payment
Payment for fog seals can be done by either paying for the materials in unit costs, or for the completed fog seal by area of pavement sealed.

Points to Understand
1. Fog Seals are intended as: a water and air barrier on the pavement surface, blacken the surface to help chip seals with rock retention.
2. If diluting the emulsified asphalt, dilution at the plant is necessary to control residual content.
3. Final residual after dilution should be at least 28% and should be shot the same day.
4. Blotter aggregate can be used to absorb excess emulsified asphalt.
5. Necessary application rates should be verified by conducting a test strip or ring test.
6. Longitudinal spray rate of emulsion is verified through calculation of tank volume and area of application.
7. Ensure the fog seal application does not cause a significant reduction in the surface texture of the pavement.
8. Aggregate spread is verified checking truck weight and dividing by the area covered.
9. Application rates (volume of emulsion/area & weight of aggregate/area) are recommended daily.
10. Ambient and pavement temperatures both need to meet requirements.
11. Traffic may be allowed on the fog seal after the emulsified asphalt has completely set and after aggregate has been applied, if used.

Deal breakers and no fly zone
Keys that are critical to a successful project:
1. Emulsified asphalt quality specs met
2. Aggregate gradation and quality specs met
3. Conduct test strip or ring test
4. Perform calibrations
5. Weather requirements are met
6. Do not allow traffic until completely set
7. Incorporate a QA/QC program into spec
8. Trained (certified) inspector & contractor staff

Referenced Documents
AASHTO: M 140, M 208, T 27, T 304, AASHTO 10th Edition of Guide Specifications for Highway Construction