



**DEVELOPMENTAL SPECIFICATIONS
FOR
PENETRATING ENGINEERED FOG SEAL**

**Effective Date
February 20, 2017**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE DEVELOPMENTAL SPECIFICATIONS AND THEY PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

15060.01 DESCRIPTION.

Clean the pavement surface and apply engineered emulsion to the entire pavement surface, shoulder surface, or milled shoulder rumble strip using a bituminous distributor.

15060.02 MATERIALS.

A. Material Properties.

Table 15060.02-1: Engineered Emulsion Properties

	Min.	Max.
Distillation: Oil Distillate, by Volume of Emulsion, %	12.0	18.0
Tests on Residue from Distillation Test: Penetration @ 77°F @ 0.1 mm Ductility @ 39°F 5 cm/min., cm	100 30	150 -
Elastic Recovery (Materials Method Test No. Iowa 631)	85	-
Specific Gravity	0.8700	0.8800
pH	3.1	5.0
Boiling Point (°F)	310	330
Sieve Test	0	0.3
Saybolt Viscosity (Materials I.M. 343), seconds	5	20

B. Use approved products from Materials I.M. 439 Appendix A. See Materials I.M. 439 for approval process.

C. Do not reduce the retroreflectivity of traffic paint and/or pavement markings by more than 5% when measured per Materials I.M. 386.

15060.03 CONSTRUCTION.

A. Equipment.

Use equipment meeting the requirements of Articles 2001.12 and 2001.14 of the Standard Specifications.

B. Cleaning.

Immediately prior to placement, clean the entire surface to be treated. Use scrapers, compressed air, or other approved methods.

D. General.

Calibrate the distributor to the specified target rate prior to start of work.

E. Application.

1. Uniformly apply engineered fog sealer at the rate of 0.02 gallons per square yard of treatment area.
2. The optimum application rate may be adjusted by the Engineer based on texture, porosity, and age of the treatment surface.
3. Use safety and convenience to the public without soiling their vehicles as a controlling factor.
4. For pavement applications, apply at a width of one-half of the roadway plus an overlap of approximately 4 inches at the middle of the road. Cover each width in one application while the opposite one-half of the roadway is left open to public traffic.
5. For shoulder applications, apply so the entire shoulder surface or milled rumble strip is covered in one application.
6. Do not apply to bridge decks or railroad rails and flangeways.
7. Demonstrate to Engineer at start of work the ability to retain 95% of the initial retroreflectivity of pavement markings at no cost to the Contracting Authority. Use the procedure in Materials I.M. 386 to determine retroreflectivity.

F. Limitations.

1. Unless the Engineer approves, do not place on damp or wet surfaces, during rainy or damp weather, or when rain is anticipated within one hour after application is completed.
2. Apply during weather conditions which allow satisfactory application. Do not apply when either surface temperature or air temperature is below 50°F.
3. A sand dam or other approved means may be necessary to prevent the material from running on to the area adjacent to the work area in areas of superelevated curves.
4. Do not allow traffic on the treated surface until the engineered fog sealer has fully cured.

G. Scheduling.

1. A preconstruction conference will be required for this work. This will normally be a single conference for all work of this type in each residency.
2. At the preconstruction conference, provide the Engineer a probable schedule for work of this type in the District jurisdiction, including the sequence for each project.

15060.04 METHOD OF MEASUREMENT.

- A. Measurement for Engineered Emulsion for Fog Seal (Pavement) will be in gallons as provided in Article 2307.04, B of the Standard Specifications.
- B. Measurement for Engineered Emulsion for Fog Seal (Shoulders) will be in gallons as provided in Article 2307.04, B of the Standard Specifications.
- C. Measurement for Engineered Emulsion for Fog Seal (Shoulder Rumble Strips) will be in gallons as provided in Article 2307.04, B of the Standard Specifications.
- D. Measurement for Engineered Emulsion for Fog Seal (Centerline Rumble Strips) will be in gallons as provided in Article 2307.04, B of the Standard Specifications.

15060.05 BASIS OF PAYMENT.**A. Engineered Emulsion for Fog Seal (Pavement).**

- 1. Payment for Engineered Emulsion for Fog Seal (Pavement), measured as provided above, will be at the contract unit price per gallon that is used on the project. Engineered emulsion that is delivered to the job site, but not applied to the roadway surface will not be considered for payment.
- 2. Payment is full compensation for:
 - Cleaning the pavement surface,
 - Furnishing and applying the emulsion, and
 - Protecting the pavement adjacent to the work area in areas of superelevated curves.

B. Engineered Emulsion for Fog Seal (Shoulders).

- 1. Payment for Engineered Emulsion for Fog Seal (Shoulders), measured as provided above, will be at the contract unit price per gallon that is used on the project. Engineered emulsion that is delivered to the job site, but not applied to the roadway surface will not be considered for payment.
- 2. Payment is full compensation for:
 - Cleaning the shoulder surface,
 - Furnishing and applying the emulsion, and
 - Protecting the pavement adjacent to the work area in areas of superelevated curves.

C. Engineered Emulsion for Fog Seal (Shoulder Rumble Strips).

- 1. Payment for Engineered Emulsion for Fog Seal (Shoulder Rumble Strips), measured as provided above, will be at the contract unit price per gallon that is used on the project. Engineered emulsion that is delivered to the job site, but not applied to the roadway surface will not be considered for payment.
- 2. Payment is full compensation for:
 - Cleaning the shoulder surface,
 - Furnishing and applying the emulsion, and
 - Protecting the pavement adjacent to the work area in areas of superelevated curves.

D. Engineered Emulsion for Fog Seal (Centerline Rumble Strips).

1. Payment for Engineered Emulsion for Fog Seal (Centerline Rumble Strips), measured as provided above, will be at the contract unit price per gallon that is used on the project. Engineered emulsion that is delivered to the job site, but not applied to the roadway surface will not be considered for payment.
2. Payment is full compensation for:
 - Cleaning the pavement surface,
 - Furnishing and applying the emulsion, and
 - Protecting the pavement adjacent to the work area in areas of superelevated curves.

- E.** Any pavement markings that do not retain 95% of their initial retroreflectivity will be replaced at no cost to the Contracting Authority.