



**SPECIAL PROVISIONS  
FOR  
BITUMINOUS FOG SEAL CONTAINING GILSONITE (PAVEMENT)**

**Clinton County  
FM-C023(121)--55-23**

**Effective Date  
August 16, 2022**

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

Make the following revisions to Section 2306 of the Standard Specifications:

**2306.02, Materials.**

**Replace the Article:**

**A. Asphalt Emulsion for Fog Seal (Pavement).**

Unless the Engineer directs otherwise, use asphalt emulsion grade CQS-1, CQS-1H, CSS-1 or SS-1. When specified, emulsion shall contain a minimum of 20% Gilsonite Ore with the following modifications to Section 4140:

Tests on Residue from Distillation, or Evaporation<sup>1</sup> (AASHTO T 59)

- Viscosity at 275°F (135°C) ASTM D 4402 = 1.750 Pa·s maximum
- Solubility in trichloroethylene ASTM D 2042 = 97.5% minimum
- Penetration AASHTO T 49 = 50 dmm maximum
- Asphaltenes ASTM D 2007 = 15% minimum
- Saturates ASTM D 2007 = 15% maximum
- Polar Compounds ASTM D 2007 = 25% minimum
- Aromatics ASTM D 2007 = 15% minimum

1) AASHTO T 59 is modified by reducing the temperatures to 300°F maximum for distillation or evaporation test methods.

**B. Friction Material.**

1. For emulsion containing Gilsonite Ore, the friction material shall be a dry, clean, dust-free slag or sand with a Mohs hardness of 6-8. The material shall be angular and black in color.

2. The friction material shall be copper slag or similar angular, black abrasive, and shall meet the following gradation analysis per ASTM D 451:

**Table 2306.02-1: Friction Material Gradation**

| Sieve Size | % Retained by Weight |
|------------|----------------------|
| No. 16     | 0-1                  |
| No. 20     | 0-1                  |
| No. 30     | 5-20                 |
| No. 40     | 40-65                |
| No. 50     | 20-40                |
| No. 60     | 0-5                  |
| No. 100    | 0-3                  |
| Pan        | 0-0.2                |

**2306.03, C, Dilution.**

**Add** the following to the Article:

Emulsions containing Gilsonite use a dilution rate of one part asphalt emulsion to one part water.

**2306.03, E, Application.**

**Replace** the Article:

1. Uniformly apply dilute asphalt emulsion at the rate of 0.12 gallons per square yard of pavement surface. For emulsions containing Gilsonite, use a rate of 0.12 gallons per square yard of pavement surface. The application rate may be ~~reduced~~ modified as directed by the Engineer. For excessive application rates, the Engineer may require a light coat of sand. The Engineer may require brooming of ponded areas prior to placing traffic on the pavement.
2. Use safety and convenience to the public without soiling their vehicles as a controlling factor.
3. For emulsions containing Gilsonite, the friction material shall be applied immediately to coincide with application of the fog seal such that the friction material is imbedded before the fog seal begins to break. Friction material shall be applied at the rate of 0.50 to 0.75 pounds per square yard. Application shall be accomplished using a broadcast spreader mounted on the rear of the fog seal distributor, and apply material evenly across the full width of the spray bar. The spreader unit must be done in such a manner as to prevent driving on the freshly applied fog sealed areas. Push-type hand spreaders will be allowed for use around lights, signs, and other obstructions. Contractor shall schedule this work so the fog seal application and the spreading operation work as a cohesive unit with the spreading from the rear of the fog seal distributor. Spreading will be done in a manner so as to prevent excess material from broadcasting onto adjacent pavement prior to the fog seal being applied.
- 3 4. Apply asphalt emulsion 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.
- 4 5. Do not apply asphalt emulsion to bridge decks or railroad rails and flangeways.

**2306.04, Method of Measurement.**

**Renumber** Article B and **Add** new Article:

**B. Asphalt Emulsion Containing Gilsonite for Fog Seal (Pavement).**

Gallons of Undiluted Asphalt Emulsion as provided in Article 2307.04, B.

**B C.Sand.**

**2306.05, Basis of Payment.**

**Add the Article:**

**C. Asphalt Emulsion Containing Gilsonite for Fog Seal (Pavement).**

1. Contract unit price per gallon for Undiluted Asphalt Emulsion Containing Gilsonite for Fog Seal (Pavement) that is mixed and used on the project. Diluted asphalt emulsion containing Gilsonite 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:
  - a. Cleaning the pavement surface.
  - b. Furnishing and applying the diluted asphalt emulsion including water for dilution.
  - c. Furnishing and applying friction material.
  - d. Brooming of ponded areas as necessary.
  - e. Protecting the pavement adjacent to the work area in areas of superelevated curves.