

Special Specification 3019

Trackless Underseal Coating



1. DESCRIPTION

Construct an underseal coating composed of non-tracking asphalt binder meeting the requirements of Table 1 or Table 2. The asphalt binder is applied through a distributor and is covered when the material becomes trackless with a mixture of aggregate, asphalt binder and additives mixed hot (or warm) in a mixing plant.

Table 1
Polymer-Modified Emulsions Requirements

Test on Emulsion	Test Method	Min	Max
Viscosity, Saybolt FUROL, 77°F, SFS	T 72	20	100
Storage Stability ¹ , %	T 59	-	1
Demulsibility			
Anionic emulsions – 35 ml of 0.02 N CaCl ₂ , %	T 59	55	-
Cationic emulsions – 35 ml of 0.8% sodium dioctyl sulfosuccinate, %			
Sieve Test, %	T 59	-	0.05
Distillation Test ²			
Residue by distillation, % by weight	T 59	63	0.5
Oil portion of distillate, % by volume			
Track Free Time ³ , min.	Test Strip	-	30
Test on Residue from Distillation	Test Method	Min	Max
Elastic Recovery, 50°F, 50 mm/min., %	Tex-539-C	60 ⁴	-
Softening Point, °F	T 53	135 ⁴	

- After standing undisturbed for 24 hr., the surface must be smooth, must not exhibit a white or milky colored substance, and must be a homogenous color throughout.
- The temperature on the lower thermometer should be brought slowly to 350°F ±10°F and maintained at this temperature for 20 min. The total distillation should be complete in 60 min. ±5 min. from the first application of heat.
- Spray a test strip of underseal coating at a location on or near the project as directed. Allow the strip to cure for the maximum time specified. Drive over the test strip with the equipment to simulate the effect of paving equipment. There should be no evidence of tracking or picking up of the underseal coating on the wheels of the equipment.
- The material must meet the either of these requirements for softening point or elastic recovery.
- Provide asphalt materials that have been preapproved for the use by the Construction Division in accordance with Tex-545-C, "Asphalt Binder Quality Program."

Table 2
Polymer-Modified Asphalt Cement Requirements

Test on Emulsion	Test Method	Min	Max
Viscosity, 275°F, cP	T 316	-	5000
Penetration, 77°F, 100g, 5 sec.	T 49	-	25
Softening point, °F	T 53	170	-
Dynamic shear, G ² /sin δ, 82°C, 10 rad/s, kPa	T 315	1.0	-
Flash point, C.O.C., °F	T 48	425	-
Track Free Time ¹ , min.	Test Strip	-	2

- Spray a test strip of underseal coating at a location on or near the project as directed. Allow the strip to cure for the maximum time specified. Drive over the test strip with the equipment to simulate the effect of paving equipment. There should be no evidence of tracking or picking up of the underseal coating on the wheels of the equipment.
- Provide asphalt materials that have been preapproved for the use by the Construction Division in accordance with Tex-545-C, "Asphalt Binder Quality Program".

2. EQUIPMENT

- Distributor.** Furnish a distributor that will apply the asphalt material uniformly at the specified rate or as directed. Unless otherwise directed, furnish volumetric calibration and strap stick for the tank in accordance

with Tex-922-K, Part I. Calibrate tank within the previous 5 yr. of the date first used on the project. The Engineer may verify calibration accuracy in accordance with Tex-922-K, Part II.

3. CONSTRUCTION

- 3.1. **Surface Preparation.** Remove existing raised pavement markers. Repair any damage incurred by removal as directed. Remove dirt, dust or other harmful material before underseal coating application. When shown on the plans, remove vegetation and blade pavement edges.
- 3.2. **Placement.** Unless otherwise directed, uniformly apply the asphalt at a rate between 0.15 and 0.25 gal. per square yard (residual asphalt). The Engineer may adjust the application rate, taking into consideration the existing pavement surface conditions. Prevent splattering of the asphalt when placed adjacent to curb, gutter and other structures.
- 3.3. **Quality Control.** Perform the quality control tests listed in Table 1 or Table 2. If operational tolerances in Table 3 are exceeded, adjust processes or cease production when directed. The Engineer may perform independent tests to confirm contractor compliance and may require testing differences or failing results to be resolved before resuming production.
- 3.4. **Sampling.** Obtain a 1 qt. sample of the asphalt binder for each lot of mixture produced. The Engineer will witness the sampling. Take the sample from the distributor as specified in Table 3, but not from the spray bar. Take all samples in accordance with Tex-500-C, Part III. Label the can with the corresponding lot and subplot numbers, and immediately deliver the sample to the Engineer. The Engineer will randomly choose at least 1 sample per project and test it to verify compliance with Table 1 or Table 2.

Table 3
Operational Tolerance and Minimum Testing Frequency

Test Description	Test Method	Minimum Testing Frequency	Operational Tolerance
Application Rate	Tex-247-F	1 per day	±0.02
Material Testing ¹	Tex-500-C	1 per day (sample only)	

1. The Engineer may reduce or waive the sampling and testing requirements based on satisfactory history.

4. MEASUREMENT

Unless otherwise noted on the plans, underseal coating material will be measured by one of the following methods:

- 4.1. **Volume.** Asphalt binder will be measured at the applied temperature by strapping the tank before and after road application and determining the net volume in gallons from the distributor's calibrated strap stick. The Engineer will witness all strapping operations for volume determination.

If the meter and readout device is accurate within 1.5% of the strapped asphalt volume, the Engineer may allow use of the meter and readout to determine asphalt volume used and application rate.

The Engineer may require redetermination of meter readout at any time and will require volume determinations by strapping if the meter is not accurate to within 1.5% of strapped volume.

- 4.2. **Weight.** Asphalt binder will be measured in tons using certified scales meeting the requirements of Item 320, "Equipment for Asphalt Concrete Pavement," unless otherwise approved. The transporting truck must have a seal attached to the driving device and other openings. The Engineer may require random checking on public scales, at the Contractor's expense, to verify weight accuracy.

Upon completion or temporary suspension, any remaining asphalt will be weighed by a certified public weigher or measured by volume in a calibrated tank, and the quantity converted to tons at the measured temperature. The quantity to be measured will be the number of tons received, minus the number of tons remaining after all directed work is complete, and minus the amount used for other Items.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided above will be paid for at the unit bid price for "Trackless Underseal Coating." These prices are full compensation for all materials, equipment, labor, tools, and incidentals necessary to complete the work.