
Test Procedure for**TACK COAT ADHESION****TxDOT Designation: Tex-243-F****Effective Date: March 2009**

1. SCOPE

- 1.1 Use this test method to evaluate the adhesive properties of tack coat for roadway use at the project site.
 - 1.2 This test procedure and related specification requirements are under development. Do not use this test procedure to enforce contract requirements until data is collected to establish values for specifications. Contract requirements relating to this test procedure will be enforced for lettings subsequent to the time this note is removed.
 - 1.3 The values given in parentheses (if provided) are not standard and may not be exact mathematical conversions. Use each system of units separately. Combining values from the two systems may result in nonconformance with the standard.
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2. APPARATUS

- 2.1 *Tack coat pull-off device*, as shown in Figure 1.
 - 2.2 *Torque wrench*, 75-lb-in. capacity.
 - 2.3 *Handheld non-contact infrared thermometer*, capable of measuring from 40°F (4°C) to 350°F (177°C) with an accuracy of $\pm 2^\circ\text{F}$ ($\pm 1^\circ\text{C}$), with a LCD display capable of displaying the maximum temperature, adjustable emissivity in increments of 0.01 or a fixed emissivity equal to or greater than 0.95 and a minimum 6:1 distance to spot ratio.
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3. MATERIALS

- 3.1 *Double-coated tape*, 3M or equivalent.
 - 3.2 *Utility cutting knife*.
 - 3.3 *Armstrong (S-1831) moisture barrier sheeting*, or equivalent.
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Figure 1—Tack Coat Pull-Off Device

4. PROCEDURE

- 4.1 Cut a piece of the double-coated tape approximately 5 in. (127 mm) in diameter.
- 4.2 Attach the double-coated tape to the contact plate of the testing apparatus. Remove any excess double-coated tape with a utility cutting knife.
- 4.3 Cut a circular piece of the moisture barrier sheeting approximately 5 in. (127 mm) in diameter.
- 4.4 Attach the smooth and slick textured side of the moisture barrier sheeting to the double-coated tape. Remove any excess moisture barrier sheeting.

- 4.5 Fasten the contact plate with the double-coated tape and moisture barrier sheeting to the bottom of the testing device with the use of wing nuts.
- 4.6 Select a test section of pavement of approximately 2 ft.² (0.2 m²) in size that is coated with tack coat.
- 4.7 Record the following information:
- tack coat type,
 - application rate,
 - rate uniformity of application, such as uniform, streaking, or puddling, and
 - ambient and pavement temperatures.
- 4.8 Allow tack coat to cure for approximately 30 min.
- 4.9 Position the testing device onto the test section.
- 4.10 Lower the contact plate prepared in accordance with Sections 4.1–4.5 using a torque wrench until it touches the pavement surface.
- 4.11 Place 40 lb. (18 kg) load on top of the testing device and hold in place for approximately 10 min.
- 4.12 Remove the load from the testing device after approximately 10 min.
- 4.13 Connect the torque wrench to the testing device.
- 4.14 Apply torque until the contact plate completely separates from the pavement surface.
- 4.15 Record the maximum torque required to completely separate the contact plate from the pavement surface.
- 4.16 Calculate the adhesive strength of the tack coat in accordance with Section 5.
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5. CALCULATIONS

- 5.1 Calculate the adhesive strength of the applied tack coat material:

$$\text{Strength} = (C \times T)$$

Where:

Strength = adhesive strength of applied tack coat material, psi (kPa)

T = maximum torque required to separate contact plate from pavement surface, lb.-in.
(N-m)

C = calibration factor, psi.

Note 1—Reference Table 1 for recommended values for the respective UPOD device number.

Table 1—Recommended UPOD Calibration Factors

UPOD No.	Calibration Factor, psi
1	0.079
2	0.072
3	0.085
4	0.085
5	0.081
6	0.075

6. ARCHIVED VERSIONS

6.1 Archived versions are available.