



Designation: ~~D7000-08~~ Designation: D7000 – 11

# Standard Test Method for Sweep Test of Bituminous Emulsion Surface Treatment Samples<sup>1</sup>

This standard is issued under the fixed designation D7000; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This test method measures the curing performance characteristics of bituminous emulsion and aggregates by simulating the brooming of a surface treatment in the laboratory.

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 A precision and bias statement for this standard has not been developed at this time. Therefore, this standard should not be used for acceptance or rejection of a material for purchasing purposes.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

### 2.1 ASTM Standards:<sup>2</sup>

C127 Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate

D8 Terminology Relating to Materials for Roads and Pavements

D75 Practice for Sampling Aggregates

D140 Practice for Sampling Bituminous Materials

D226 Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing

D977 Specification for Emulsified Asphalt

D2397 Specification for Cationic Emulsified Asphalt

### 2.2 ISSA Document:<sup>3</sup>

ISSA Technical Bulletin No. 100 Test Method for Wet Track Abrasion of Slurry Surfaces

## 3. Summary of Test Method

3.1 The sweep test is effective for defining the film formation stage of bituminous emulsions. A brush (designed to closely replicate the sweeping action of a broom) exerts a force on the aggregate used on surface treatments. Bituminous emulsion is applied to an asphalt felt disk. Aggregate is applied and embedded into the bituminous emulsion. The sample is then conditioned at a prescribed temperature and time period before testing. A mixer abrades the surface of the sample using a nylon brush. After one minute of abrasion, the test is stopped, any loose aggregate is removed, and the percent mass loss is calculated.

## 4. Significance and Use

4.1 This test method is useful for classifying rapid-setting bituminous emulsions and is applicable to surface treatments that require a quick return to traffic. It has the capability to predict surface treatment performance in the formative stage using construction components. This performance test is intended to evaluate the potential curing characteristics of a binder-aggregate combination to ensure that the surface treatment is sufficiently cured before allowing traffic onto the seal.

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.24 on Bituminous Surface Treatments.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> Available from International Slurry Surfacing Association (ISSA), 3 Church Circle, PMB 250, Annapolis, MD 21401, http://www.slurry.org.

**5. Apparatus**

5.1 *Mixer*<sup>4</sup>—Use to abrade the sample.

5.2 *Quick-clamp Mounting Base*<sup>5</sup>—This base must be an adequate and level support for clamping the sample in place. The test sample should not move during abrasion.

5.3 *Pan*—An appropriate pan will contain the test sample on the mixer and hold dislodged aggregate.

5.4 *Oven*—The conditioning oven shall be a constant temperature forced draft oven meeting the following requirements containing shelves with at least 65 % voids. The shelves shall be placed at least 120 mm apart and 100 mm away from the top and floor.

Oven Type	Forced draft oven
Min Inside D × W × H	460 × 460 × 460 mm
Accuracy	±1.0°C

5.5 *Balance*—A balance capable of weighing 800 g or more to within ±0.1 g. A minimum platform length and width of 240 mm is required.

5.6 *Removable Brush Holder*—The brush holder shall be attachable to the mixer and capable of a free floating vertical movement of 19 ± 1 mm having the dimensions listed in Fig. 1. A drawing of this apparatus can be seen in Fig. 1. The total weight of the brush head and the attached weight shall weigh 1500 ± 15 g. The collar and nylon strip brush are not included in this weight. The brush clamping system shall hold the nylon strip brush in place so that it will not move or dislodge during testing.

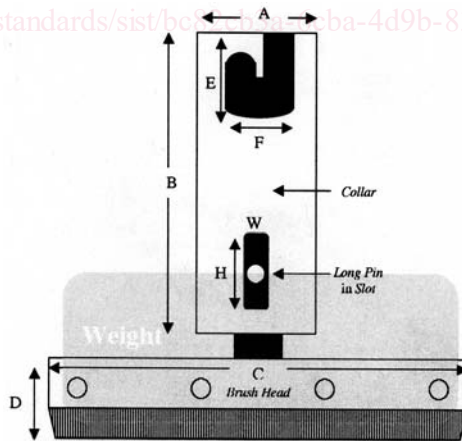
5.7 *Nylon Strip Brush*<sup>6</sup>—The brush shall conform to the following specifications.

Overall Trim	25.4 mm
Overall Length	127 ± 1 mm
Backing Size	#7
Fill Material	Crimped black nylon
Nylon Type	6.0
Fill Diameter	0.254 mm
Weight	35 ± 2 g

<sup>4</sup> The sole source of supply of the Hobart Mixer 1/3 H.P. Fixed Speed Motor, model A 120, apparatus known to the committee at this time is Hobart Corporation, 701 S. Ridge Ave., Troy, OH 45374, <http://www.hobartcorp.com>. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend.

<sup>5</sup> The sole source of supply of the Wet Track Abrasion Tester (ISSA TB100) apparatus known to the committee at this time is Mastrad Limited, Finch House, 25 Finch Road, Douglas, United Kingdom IM1 2PS, <http://www.mastrad.com>. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend.

<sup>6</sup> The sole source of supply of the Nylon Strip Brush Part #MB7006 apparatus known to the committee at this time is Tanis Incorporated, 3660 Kettle Court E., Delafield, WI 53018, <http://www.tanisinc.com>. If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend.



Dimensions		
ID	Name	mm
A	Collar diameter	36
B	Collar height	76
C	Brush head length	128
D	Overall brush head height	19
E	Groove height	17
F	Groove width	18
H	Slot height	19
W	Slot width	7

**FIG. 1 Brush Holder**