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Standard Practice for Design, Testing, and Construction of Micro-Surfacing[1]

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1. Scope

1.1 This practice covers the design, testing, and construction of mixtures of polymer modified asphalt emulsion, mineral aggregate, mineral filler, water, and other additives, properly proportioned, mixed and spread on a paved surface. It is written as a guide and should be used as such. End use specifications should be adapted to conform to job and user requirements.

1.2 The values stated in SI units are to be regarded as the standard.

1.3 *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:*

C 88 Test Method for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate[2]

C 117 Test Method for Materials Finer Than No. 200 Sieve in Mineral Aggregates by Washing[2]

C 131 Test Method for Resistance to Degradation of Small Size Coarse Aggregates by Abrasion and Impact in the Los Angeles Machine[2]

C 136 Test Method for Sieve Analysis of Aggregate[2]

D 36 Test Method for Softening Point by the Use of Ring and Ball[3]

D 75 Practice for Sampling Aggregate[4]

D 140 Practice for Sampling Bituminous Material[4]

D 244 Test Method for Testing Emulsified Asphalt[4]

D 977 Specification for Emulsified Asphalt[4]

D 2397 Specifications for Cationic Emulsified Asphalt[4]

D 2419 Test Method for Sand Equivalent Value of Soils and Fine Aggregate[4]

D 3910 Practice For Design, Testing, and Construction of Slurry Seal[4]

2.2 *ISSA Documents:*

ISSA Technical Bulletin No. 100, Test Method for Wet Track Abrasion of Slurry Surfaces[5]

ISSA Technical Bulletin No. 139, Test Method to Classify Emulsified Asphalt/Aggregate Mixture Systems by Modified Cohesion Tester, Measurement of Set and Cure Characteristics[5]

ISSA A143 Revised May 1996 Recommended Performance Guidelines For Micro-Surfacing[5]

ISSA Technical Bulletin No. 144, Test Method for Classification of Aggregate Filler—Bitumen Compatability by Schultze-Breuer and Ruck Procedures

ISSA Technical Bulletin No. 147, Test Methods for Measurements of Stability and Resistance to Compaction, Vertical and Lateral Displacement of Multilayered Fine Aggregate Cold Mixes[5]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *polymer modified emulsified asphalt micro-surfacing mixtures*—as related to this practice, mixtures of fine aggregate with mineral filler, mixing water, and field control additive, uniformly mixed with polymer modified emulsified asphalt.

4. Summary of Practice

4.1 This practice outlines the basic properties for materials, mix design procedures, and application techniques for the design and application of micro-surfacing. The mix developed through this practice should be capable of being spread in variable thick cross sections, which after curing and initial traffic consolidation, resist compaction through the entire design tolerance range of bitumen content and variable thickness to be encountered. The end product should maintain a high friction surface and variable thick sections throughout its surface life. The mix should be a quick traffic system and should be able to accept rolling traffic on a 12.7 mm thick surface within 1 h after placement in 24°C temperature and 50 % or less humidity.

[1] This practice is under the jurisdiction of ASTM Committee D-4 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.24 on Bituminous Surface Treatments.

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[2] *Annual Book of ASTM Standards*, Vol 04.02.

[3] *Annual Book of ASTM Standards*, Vol 04.04.

[4] *Annual Book of ASTM Standards*, Vol 04.03.

[5] Available from International Slurry Surfacing Association, Washington, D.C., 20036.

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