Designation: D 3910 – 98

AMERICAN SOCIETY FOR TESTING AND MATERIALS
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Standard Practices for Design, Testing, and Construction of Slurry Seal[1]

This standard is issued under the fixed designation D 3910; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 These practices cover the design, testing, and construction of mixtures for surface treatment of pavements. 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 *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 128 Test Method for Specific Gravity and Absorption of Fine Aggregate[2]

D 242 Specification for Mineral Filler for Bituminous Paving Mixtures[3]

D 977 Specification for Emulsified Asphalt[3]

D 1073 Specification for Fine Aggregate for Bituminous Paving Mixtures[3]

D 2397 Specification for Cationic Emulsified Asphalt[3]

D 2419 Test Method for Sand Equivalent Value of Soils and Fine Aggregate[3]

E 145 Specification for Gravity-Convection and Forced-Ventilation Ovens[4]

2.2 *Other Documents:*[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.

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *emulsified asphalt slurry seal mixtures*— as related to these practices, mixtures of fine aggregate with or without mineral filler, with or without mixing water, uniformly mixed with emulsified asphalt.

4. Significance and Use

4.1 These slurry seal practices are written as a guide and should not be construed as specifications.

4.2 End-use specifications should be adopted to conform to job and user requirements.

5. Design

5.1 *Aggregates*:

5.1.1 The fine aggregate shall consist of natural or manufactured sand, slag, crushed fines or other mineral aggregate that conforms to the quality requirements of Specification D 1073.

5.1.2 Recommended grading requirements are shown in Table 1.

5.1.3 Smooth-textured sand of less than 1.25 % water absorption shall not exceed 50 % of the total combined aggregate. (For heavy duty surface requirements, use 100 % crushed material.)

5.1.4 When tested by Test Method D 2419, the combined aggregate prior to the addition of any chemically active mineral fillers shall have a sand equivalent of not less than 45.

5.2 *Mineral Filler*:

5.2.1 Mineral fillers are of two types, chemically active and chemically inactive. Both shall conform to Specification D 242.

5.2.2 Chemically active mineral fillers such as portland cement, hydrated lime, and ammonium sulfate are used to improve the workability, regulate the setting time and, in some cases, to alter the aggregate gradation.

5.2.3 Chemically inactive mineral fillers such as limestone dust, flyash, and rock dust are used mainly to alter aggregate gradation.

5.3 *Emulsified Asphalt*—The emulsified asphalt shall conform to Grade SS-1h of Specification D 977, for emulsified asphalt, or Grade CSS-1h of Specification D 2397, for cationic emulsified asphalt.

5.3.1 Quick-Set emulsified asphalts, QS-1h and CQS-1h may also be used. They conform to Specifications D 977 and D 2397 respectively, except that the test requirements for cement mixing and storage stability shall not apply. Refer to

[1] These practices are under the jurisdiction of ASTM Committee D-4 on Road and Paving Materialsand are the direct responsibility of Subcommittee D04.24 on Bituminous Macadams and Surface Treatments.

Current edition approved June 10, 1998. Published March 1999. Originally published as D 3910 – 80. Last previous edition D 3910 – 96.

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

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

[4] *Annual Book of ASTM Standards*, Vol 14.02.

[5] Available from the International Slurry Surfacing Association, 1200 19th St. NW, Suite 300, Washington, DC. 20036-2401.