



Designation: D2489 – 02

Standard Practice for Estimating Degree of Particle Coating of Bituminous- Aggregate Mixtures¹

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1. Scope*

1.1 This practice provides an estimate of the degree of particle coating in a bituminous-aggregate mixture on the basis of the percentage of coarse particles classified as being completely coated.

1.2 The values stated in SI units are regarded as being 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:*²

D8 Terminology Relating to Materials for Roads and Pavements

D979 Practice for Sampling Bituminous Paving Mixtures

D995 Specification for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures³

D3515 Specification for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures³

D3665 Practice for Random Sampling of Construction Materials

D4215 Specification for Cold-Mixed, Cold-Laid Bituminous Paving Mixtures

E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

3. Terminology

3.1 For definitions of terms, see Terminology **D8**.

¹ This practice is under the jurisdiction of ASTM Committee **D04** on Road and Paving Materials and is the direct responsibility of Subcommittee **D04.23** on Plant-Mixed Bituminous Surfaces and Bases.

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² 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.

³ Withdrawn. The last approved version of this historical standard is referenced on www.astm.org.

3.2 For descriptions of mixing plant terms, see Mixing Plants, Specification **D995**.

4. Significance and Use

4.1 The procedure in this practice for estimating the percentage of coated particles after varying mixing times is used to establish the least mixing time required to produce satisfactory coating for a given set of conditions. This procedure can also be used to sample cold mixtures from stockpiles to determine that satisfactory coating has been retained in the stockpile.

4.2 This procedure is used with hot-mixed, hot-laid bituminous paving mixtures such as specified in Specification **D3515** or with cold-mixed, cold-laid bituminous paving mixtures such as specified in Specification **D4215**.

NOTE 1—Even when a paving mixture complies with the “percent of coated particles” that may be specified, there is no assurance that the asphalt cement is uniformly distributed throughout the mixture.

5. Apparatus

5.1 *Sieves*, 9.5 mm ($\frac{3}{8}$ in.) and 4.75 mm (No. 4). The sieves shall conform to Specification **E11**.

5.2 *Stopwatch*, for checking actual mixing time of batch plants.

5.3 *Thermometer*, range at least from 10°C (50°F) to 204°C (400°F).

5.4 *Sample Shovel*.

5.5 *Sample Trays*.

6. Sampling

6.1 *Batch Plant*—Permit the plant to operate at an established mixing time per batch (timed by a stopwatch).

6.2 *Continuous Mix Plant*—Establish a mixing time by use of the following formula:

$$\text{mixing time} = \text{pug mill contents, kg (lb)/pug mill output, kg/s (lb/s)} \quad (1)$$

6.3 *Drum Mix Plant*—Operate the plant at a steady state condition for a period of time long enough to complete the sampling.

6.4 Samples should be taken at the site of the bituminous mixing plant immediately after discharge from the plant from three truck loads selected at random in accordance with

*A Summary of Changes section appears at the end of this standard.