



Designation: D 3625 – 96 (Reapproved 2001)

## Standard Practice for Effect of Water on Bituminous-Coated Aggregate Using Boiling Water<sup>1</sup>

This standard is issued under the fixed designation D 3625; 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 practice covers a rapid procedure for visually observing the loss of adhesion in uncompacted bituminous-coated aggregate mixtures due to the action of boiling water.

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:

E 1 Specification for ASTM Thermometers<sup>2</sup>

D 979 Practice for Sampling Bituminous Paving Mixtures<sup>3</sup>

### 3. Summary of Practice

3.1 A bituminous-coated aggregate mixture sample is placed in a container of boiling distilled water and boiled for 10 min. After cooling the boiled mixture, visual observation is made of retained bitumen coating on the aggregate.

### 4. Significance and Use

4.1 This practice is useful as an indicator of the relative susceptibility of bituminous-coated aggregate to water, but should not be used as a measure of field performance because such correlation has not been established. If loss of adhesion due to water is indicated, testing by other procedures should be conducted to further evaluate the mixture.

4.2 This practice should not be used for acceptance/rejection by owner agencies.

### 5. Apparatus

5.1 *Scoop*, shovel or other implement capable of removing a representative sample from a larger mass of bituminous-coated aggregate mixture.

5.2 *Glass Beakers*, heat-resistant, 1000–2000 mL capacity or suitable metal containers of similar dimensions and capacity.

5.3 *Source of Distilled Water* (at least 500 mL (½ qt) for each test) (Note 1).

NOTE 1—Water that is not distilled has been shown to significantly affect results of the procedure and should not be used.

5.4 *Device for Heating Water*—gas burner with wire gauze supported on tripod or ring, hot plate, camp stove or other suitable device which will distribute heat evenly.

5.5 *Thermometers*—ASTM low-distillation thermometers graduated either in Celsius or Fahrenheit as specified, having a range from –2 to +300°C or 30 to 580°F respectively, and conforming to the requirements for thermometer 7C or 7F as prescribed in Specification E 1.

### 6. Sample Preparation

6.1 Prepare an uncompacted bituminous-coated aggregate mixture following established laboratory procedures or obtain a sample of plant-produced mixture in accordance with Practice D 979. The temperature of hot mixtures shall be below the boiling temperature of water, but not less than 85°C (180°F), before placing in boiling water. The temperature of mixtures that are cold mixed shall be at or above room temperature before placing in boiling water.

### 7. Procedure

7.1 For each sample tested pour distilled water into a clean container (as described in 5.2) such that the container is approximately half full and heat to boiling.

7.2 With an appropriate implement (as described in 5.1) place approximately 250 g (½ lb) of the bituminous-coated aggregate mixture in the boiling water while the container is exposed to the heat source. Bring the water back to boiling and maintain boiling for 10 min ± 15 s. Avoid excessive manipulation of the bituminous-coated aggregate mixture.

7.3 At the end of 10 min, remove the container from the heat source. Skim off any free bitumen from the surface of the water to prevent re-coating. Cool to room temperature, decant the water, and empty the wet mix onto a white paper towel.

NOTE 2—For comparison, a similar amount of fresh bituminous-coated aggregate mixture should be placed into a second container, covered with

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.22 on Effect of Water and Other Elements on Bituminous-Coated Aggregates.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 14.03.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 04.03.