



## Standard Test Method for Sieve Analysis of Surfacing for Asphalt Roofing Products<sup>1</sup>

This standard is issued under the fixed designation D 452; 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.

### 1. Scope

1.1 This test method covers the determination of the particle size distribution of surfacing material, other than mineral granules, such as sand, mica, talc, or other powdered or flaky mineral particles, used on both sides of “smooth” roll roofing and on the reverse side of asphalt shingles and mineral-surfaced roll roofing.

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 11 Specification for Wire Cloth and Sieves for Testing Purposes<sup>2</sup>

### 3. Summary of Test Method

3.1 A weighed sample of surfacing material is separated through a series of sieves of progressively smaller openings for the determination with particle size distribution.

### 4. Significance and Use

4.1 This test method is used to determine the grading of materials used as surfacing. The results are used to determine compliance of the particle size distribution with applicable specification requirements.

### 5. Apparatus

5.1 *Sieves*—A set of the sieves listed in Table 1, conforming to Specification E 11. For routine testing, the group of sieves actually used shall include only those appropriate for the material being graded. Coarser or finer sieves, on which less than 0.05 mass % of the specimen would be found after sieving, need not be included in the group.

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.02 on Prepared Roofings, Shingles, and Siding Materials.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 14.02.

TABLE 1 Report Form

| Retained on Sieve |           | Passing Sieve |                       | Percent |
|-------------------|-----------|---------------|-----------------------|---------|
| 1.70-mm           | (No. 12)  | ...           | ...                   | ...     |
| 1.18-mm           | (No. 16)  | 1.70-mm       | (No. 12) <sup>A</sup> | ...     |
| 850-μm            | (No. 20)  | 1.18-mm       | (No. 16)              | ...     |
| 600-μm            | (No. 30)  | 850-μm        | (No. 20)              | ...     |
| 425-μm            | (No. 40)  | 600-μm        | (No. 30)              | ...     |
| 300-μm            | (No. 50)  | 425-μm        | (No. 40)              | ...     |
| 212-μm            | (No. 70)  | 300-μm        | (No. 50)              | ...     |
| 150-μm            | (No. 100) | 212-μm        | (No. 70)              | ...     |
| 75-μm             | (No. 200) | 150-μm        | (No. 100)             | ...     |
|                   |           | 75-μm         | (No. 200)             | ...     |
| Total             |           |               |                       | ...     |

<sup>A</sup> Designates U.S. Standard Sieve.

NOTE 1—For relatively coarse or flaky materials, such as coarse mica, sieves from 1.18-mm to 212-μm (Nos. 16 to 70) inclusive, will usually be found suitable. For finer surfacing materials, such as fine mica or talc flour, sieves from 600 to 75-μm (Nos. 30 to 200) inclusive, will usually give a satisfactory sieve analysis.

5.2 *Sieve Shaker*—A mechanically operated sieve shaker, which produces a uniform rotary motion and tapping action with 140 to 160 taps per minute. The sieve shaker shall be fitted with a hard maple plug to receive the impact of the tapping device. The entire apparatus shall be rigidly mounted by bolting to a solid foundation, preferably concrete.

5.3 *Sampling Splitter*—A riffle sampler with 9.5 or 12.7-mm ( $\frac{3}{8}$  or  $\frac{1}{2}$ -in.) divisions, for reducing the sample to the specimen required for sieve analysis.

5.4 *Oven*, capable of maintaining 105°C (221°F).

5.5 *Balance*—A laboratory balance sensitive to 0.1 g.

### 6. Sampling

6.1 Each shipment of surfacing of a single type shall be considered a unit for sampling. If a shipment contains more than one type, the entire quantity of each type in the vehicle shall be considered a unit for sampling.

6.2 Take the sample of surfacing shipped in bulk from the chute or conveyor while the vehicle is being loaded or unloaded. The ideal place is just where the material drops from the chute or belt. Collect equal portions from the full width and thickness of the stream at regular intervals, with such frequency that a minimum of five samples will be taken and the total mass of the sample will be not less than 7.3 kg (16 lb). Do not allow the sampling receptacle to overflow under any