



Standard Test Method for Granule Cover of Mineral Surfaced Roofing¹

This standard is issued under the fixed designation D 6225; 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 hiding power of granules on a mineral surfaced roofing sheet. The test is used primarily after an abrasion test has been conducted, to determine the portion of asphaltic compound that has been exposed as a result of the abrasion test.

1.2 The values stated in inch-pound units are regarded as the standard. The SI units given in parentheses are for information only.

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:

D 4977 Test Method for Granule Adhesion to Mineral Surfaced Roofing by Abrasion²

3. Summary of Test Method

3.1 A sample of mineral surfaced roofing material is examined under a magnifying lens and the area left unprotected by granule cover is determined using a transparency overlay with grid lines.

4. Significance and Use

4.1 This test method is used to determine the extent of coverage of the granular surfacing over the asphaltic coating in a sample of mineral surfaced roofing. The results determine compliance with the applicable specification requirements or may be used for comparative analysis. This test method applies to both “as manufactured” material and material that has weathered or undergone other types of exposure.

5. Apparatus

5.1 *Magnifier*—An optical magnifier with a fixed power of magnification of 8 \times and a working field of at least 1.25 in.²(806.5 mm²).

¹ This test method is under the jurisdiction of ASTM Committee D-8 on Roofing, Waterproofing, and Bituminous Materials and is the direct responsibility of Subcommittee D08.04 on Felts and Fabrics.

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² *Annual Book of ASTM Standards*, Vol 04.04.

5.2 *Transparency Overlay Grid*—A transparency overlay with grid markings. The transparency must be of sufficient size to cover the area abraded by the abrasion test brush described in Test Method D 4977, 1.125 by 6.25 in. (28.6 by 159 mm) with grid lines oriented to form squares 0.05 in. (1.27 mm) on a side (2160 squares/1.125 in. by 6.25 in. (28.6 by 159 mm)). The grid transparency must be capable of being positioned over the sample and must permit the operator to clearly view the sample and should be partitioned into groups of squares to facilitate counting (see Fig. 1).

5.3 *Light Source*—A high intensity lamp or fluorescent ring light, capable of providing sufficient illumination of the mineral surfaced sample to be examined.

6. Test Specimen

6.1 Cut a minimum of three 2 by 9 in. (50.8 by 229 mm) or larger specimens. Specimens may be Test Method D 4977 abrasion test samples.

6.2 Care should be taken so that granules do not transfer from one specimen to another.

7. Preparation of Apparatus

7.1 Place the specimen to be examined on a flat surface and arrange the light source and magnifier so that the sample can be plainly viewed.

7.2 Abrasion test 2 by 9 in. (50.8 by 229 mm) specimens can be examined by removing the clamping tray from the abrasion test machine and clamping the overlay grid directly over the specimen (see Fig. 2).

8. Procedure

8.1 Remove any loose granules from the specimen with gentle tapping.

8.2 Place the overlay grid so that it is in alignment with the area to be examined. In the case of abrasion test samples, the 1.25 in. by 6.25 in. (28.6 by 159 mm) portion of the grid should be aligned with the abraded area of the sample.

NOTE 1—If Test Method D 4977 abrasion test samples are being evaluated, a felt tip marker can be used to scribe a line at the bottom edge of the test brush while the sample is still in the test fixture. This line can later be used to align the overlay grid with the abrasion pattern of the test brush.

8.3 Secure the overlay grid to the sample so that it remains in place during the test.

NOTE 2—Push pins can be used over a cork of cardboard substrate if an abrasion test clamping tray is not available.

8.4 Count and record the number of squares in which one half or more of the total area of the square contains exposed asphaltic coating.

9. Calculation

9.1 Determine the percentage of exposed asphaltic coating in the sample as follows:

$$\frac{A}{B}(100) = \text{percent exposed asphalt in the sample} \quad (1)$$

where:

A = total number of squares counted in 7.4, and
B = total number of squares in the 1.25 by 6.25 in. (28.6 by 158.7 mm) grid area (2160).

9.2 Average the specimen results for each sample to obtain the percentage area of asphaltic compound exposed by

granules displaced (see Fig. 3).

10. Report

10.1 Identify the sample and the cause of granule displacement; either abrasion test or other exposure.

10.2 Report the average percent of exposed compound for each sample, to the nearest 0.1 %.

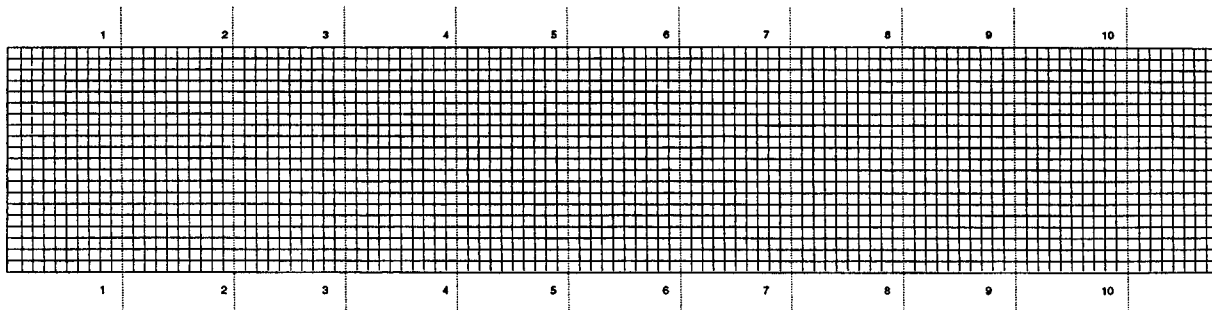
11. Precision and Bias

11.1 A precision and bias statement for this test method is being developed.

12. Keywords

12.1 abrasion loss; asphaltic compound; granule displacement; mineral surfaced roofing; weathering exposure

20 x 110 = 2160 Squares
6.25" x 1.125" = 7.03 sq. in.



NOTE 1—After copying this grid onto transparent film, measure to ensure that the dimensions of the copy are identical to the original.

FIG. 1 Granule Coverage Overlay Grid

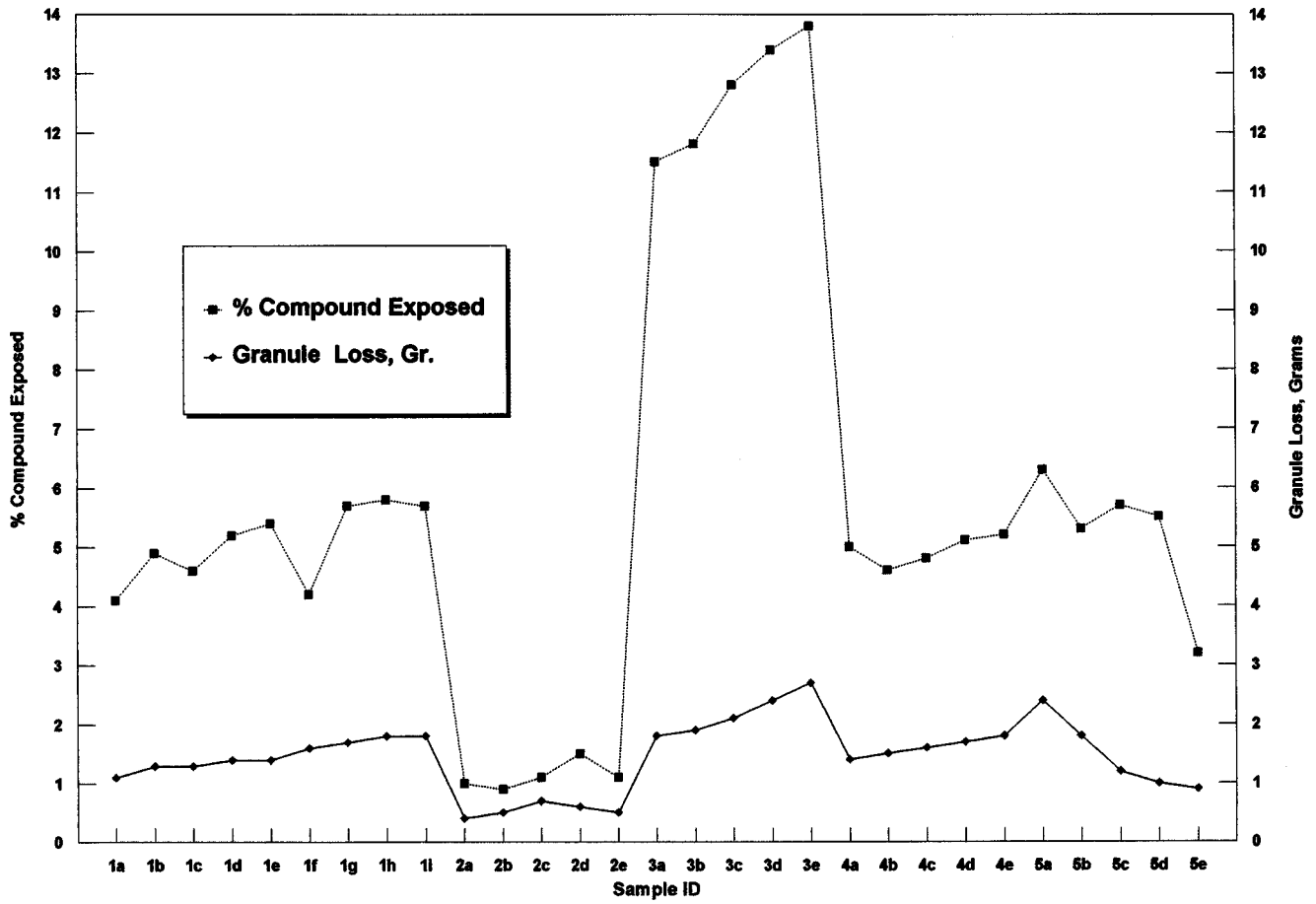
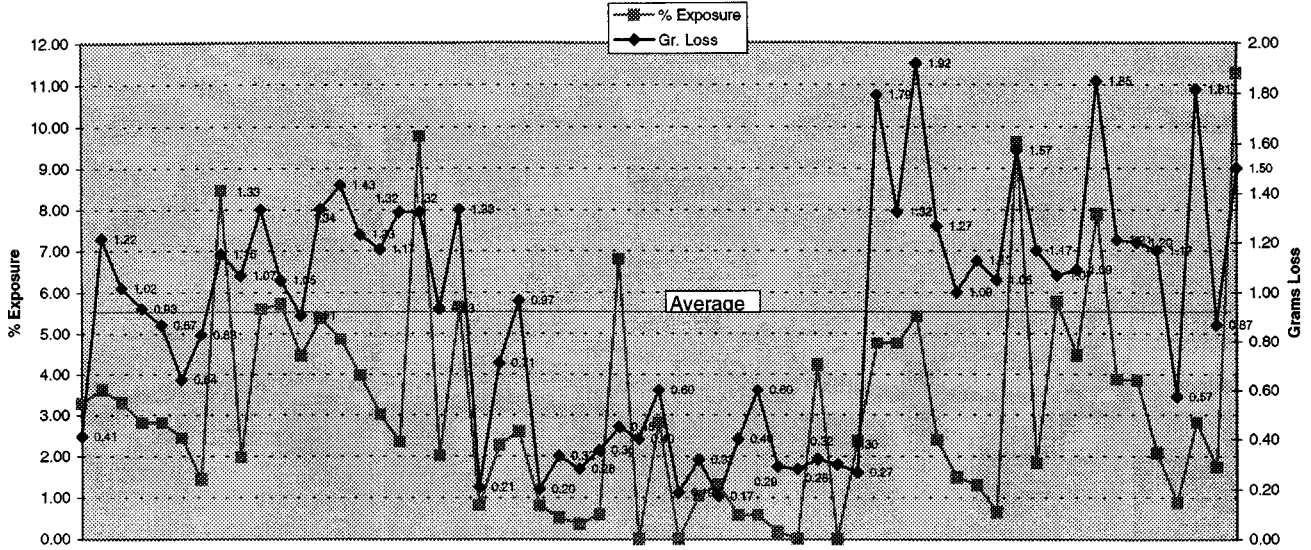


FIG. 2 Granule Loss Versus Percent Compound Exposed

All Labs - Exposure vs Loss



0.91 Grand Average Loss for all samples less than 2 grams.
 3.18 Grand Average Exposure for all samples less than 2 grams.

FIG. 3 All Labs — Exposure Versus Loss

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