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Designation: E 726 – ~~96~~01

Standard Test Method for Particle Size Distribution of Granular Carriers and Granular Pesticides[1]

This standard is issued under the fixed designation E 726; 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.

~~ε[1] NOTE—Editorial changes were made throughout in March 1991.~~

1. Scope

1.1 This test method is used to determine the particle size distribution of granular carriers and granular pesticides.

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.* For specific hazard statements, see Section 6.

2. Referenced Documents

2.1 *ASTM Standards:*

E 11 Specification for Wire-Cloth Sieves for Testing Purposes[2]

[1] This test method is under the jurisdiction of ASTM Committee E-35 on Pesticides and is the direct responsibility of Subcommittee E35.22 on Pesticide Formulation and Application Systems.

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E 725 Test Method of Sampling Granular Carriers and Granular Pesticides[3]

3. Summary of Test Method

3.1 A known weight of the granular carrier or granular pesticide is placed on the top sieve of a stacked set of U.S. standard sieves and shaken under standard conditions for a specified period of time. The weight percent of the granules retained on each sieve and the bottom pan is determined.

4. Significance and Use

4.1 This procedure was designed principally for clay, corncob, nut shell paper, or sand granular carriers and granular pesticide products, but need not be limited to these materials. There may be more appropriate test methods for other types of granular carriers and products.

5. Apparatus

5.1 *Brushes;* Tyler Part No. 8576 soft brass wire brush, or equivalent, for 100 mesh (150 µm) and coarser sieves. Tyler nylon bristle brush (Part No. 8577), or equivalent, for screens finer than 100 mesh.[4]

5.2 *Mechanical Sieve Shaker;* a Tyler RoTap sieve shaker,[5] or equivalent, or other agreed upon device.

5.3 *Sieves;* U.S. standard 8-in. (20.3 cm) diameter sieves, or equivalent, conforming to Specification E 11.

5.4 *Bottom Receiver Pan* and *Top Sieve Cover*.

5.5 *Interval Timer;* adjustable, with an accuracy of ±10 s.

5.6 *Balance;* sensitivity of 0.1 g.

6. Hazards

6.1 Before testing, read the precautionary statements on the product label, and the Material Safety Data Sheet, or both. Take proper precautions to prevent skin contact and inhalation of the fines, or the vapors, or both. Take care to prevent contamination of the surrounding area. Always wear the appropriate safety equipment and, where indicated, wear respiratory devices approved by NIOSH for the product being tested.

7. Procedure

7.1 Clean and stack the specified sieves in order of size with the pan on the bottom, and the sieve with the largest mesh on the top.

7.2 Use a representative sample of approximately 100± 5 g as defined in Test Method E 725.

7.3 Weigh the sample to ±0.1 g.

7.4 Transfer the whole weighed fraction onto the top sieve, cover and shake for the time given in the product specification or 10 min if time is not specified.

7.5 Remove the sieve assembly from the sieve shaker and, using the brush, quantitatively transfer the granular material on the top sieve to a tared weighing pan and weigh to the nearest 0.1 g. Record the value as the sieve fraction weight for that sieve. Repeat this procedure for material retained on each sieve and the bottom receiver pan.

7.6 Determine the distribution on duplicate samples.

8. Calculation

8.1 Calculate the particle size distribution of each sample to the nearest 0.1 % and the average of the two samples to the nearest 0.1 % as follows:

$$R = (F/S) \times 100$$

where:

F = sieve fraction weight,
S = sum of sieve fraction weights, and
R = percent retained on each sieve.

8.1.1 Add the weights of each sieve fraction. If the sum deviates more than 2.0 g from the sample weight, repeat the analysis.

9. Precision and Bias

9.1 This procedure yields comparative data. The pass/fail aspect of the test should be determined by applicable specifications. When used for specification purposes, the mechanical shaker and test conditions must be agreed upon.

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[2] *Annual Book of ASTM Standards*, Vol 14.02.
[3] *Annual Book of ASTM Standards*, Vol 11.05.
[4] The soft brass wire brush (No. 8576) and the nylon bristle brush (No. 8577), trademarks of W.S. Tyler Inc., or equivalents have been found satisfactory for this purpose.
[5] The sieve shaker, a trademark of W.S. Tyler Inc., or equivalent has been found satisfactory for this purpose.

10. Disposal of Sample

10.1 After testing, store all materials in a safe manner and dispose of used material in accordance with product label directions, or the Material Safety Data Sheets, or both.

11. Keywords

11.1 granular carriers; pesticides; screens; sieves; size distribution

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