Designation: E 725 – 96

Standard Test Method for Sampling Granular Carriers and Granular Pesticides[1]

This standard is issued under the fixed designation E 725; 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 presents general procedures for sampling and sampling practice for 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 5.

2. Summary of Test Method

2.1 To produce a sample that truly represents the nature and condition of the material from which it was obtained, a gross sample is reduced by standard laboratory procedures (cone and quartering, riffling, etc.) to a suitable laboratory sample. The basic sampling unit for granules is at least 500× the weight of the largest particles and is obtained in a manner to give high probability that it contains a representative portion of the material. As a safeguard against unforeseen sectional variations, a number of unit samples may be obtained and combined to form a gross sample.

3. Significance and Use

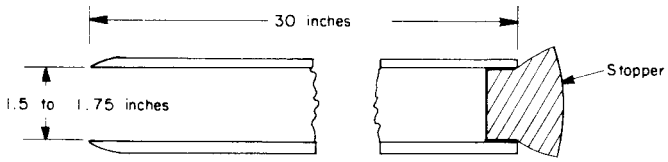
3.1 This procedure was designed principally for clay, corncob, nut shell, or sand granular carriers and granular pesticide products but need not be limited to these materials. There may be more appropriate sampling methods for other types of granular carriers and products.

4. Apparatus

4.1 *Sample Container*, fabricated from glass, plastic, or metal as required.

4.2 *Sample Splitter*, single-stage riffle type.

4.3 *Grain Thief* or *Sampling Tube* (Fig. 1), constructed from aluminum, chrome steel, poly(vinyl chloride) or other suitable material, 30 in. (762 mm) long and 1.5 to 1.75 in. (38 to 44 mm) in diameter.



Possible Tube Materials:
(1) Aluminum
(2) Chrome steel
(3) PVC

FIG. 1 Sampling Tube

5. Hazards

5.1 *Safety Precautions*—Before sampling granular pesticides read the precautionary statements on the product label and the material safety data sheet (MSDS). Take proper precautions to prevent skin contact and inhalation of the fines and vapors. Whenever possible, work under a hood. 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 sampled.

5.2 *Sample Precautions for Sensitive Materials*—Some products (hygroscopic, volatile, or oxidizable, etc.) may require special sampling precautions. Sample exposure should be minimized.

5.3 *Sample Containers*—These items, as well as the sampling apparatus, must be clean and free of any material that might contaminate the sample. An appropriate container should be selected for the product and handling it will receive. For example, containers for hygroscopic, readily oxidizable, volatile, or moisture-sensitive material, as well as for those materials to be tested for moisture content, must be capable of being sealed airtight.

5.4 *Care and Labeling of Sample*—Care should be taken to ensure that the sample is properly labeled and reaches the laboratory promptly and in its original state.

6. Procedures

6.1 *Sampling Packages*—When sampling material that is contained in a number of packages, Table 1 is a guide to the minimum number of packages (selected at random) to be sampled.

6.2 *Sampling During Production*—Collect production control samples as the product leaves the blender, or as it is packaged, taking ½-lb (225-g) portions at sufficient, regularly spaced intervals to obtain a total sample size representing a

[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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TABLE 1 Minimum Number of Packages to Be Sampled

Number of Packages	Minimum Number Sampled	Number of Packages	Minimum Number Sampled	Number of Packages	Minimum Number Sampled
1 to 3	all	513 to 729	9	2745 to 3375	15
4 to 64	4	730 to 1000	10	3376 to 4096	16
65 to 125	5	1001 to 1331	11	4097 to 4913	17
126 to 216	6	1332 to 1728	12	4914 to 5832	18
217 to 343	7	1729 to 2197	13	5833 to 6859	19
344 to 512	8	2198 to 2744	14	6860 or over	20

minimum of 0.1 % w/w of the product. Combine the samples to form a uniform gross sample. Avoid attrition if a sieve analysis is to be performed.

6.3 *Grab Sampling*—This procedure may be used for sampling from freight bunkers, hoppers, bins, cars, conveyors, drums, and bags. Use a shovel or scoop and a suitable container. Granules are generally heterogeneous and can be more representatively sampled during unloading of the material. Combine portions obtained at frequent and regular intervals to form a uniform gross sample.

6.3.1 Grab sampling should not be used for materials that may have undergone segregation unless complete sweeps of belts or discharge streams are taken at appropriate times.

6.4 *Grain Probe Sampling*—A grain probe (thief or trier) may be used for sampling bulk material. Bulk material is best sampled by the procedure described by Scott: "On a line through the center of the holder lengthwise, take portions with the probe every five feet. Repeat the operation on each of two lines parallel with and half way between the line and each side of the holder. Combine all portions for one gross sample."[2] Packages (drums, bags, etc.) may be sampled in accordance with Table 1 to obtain a gross sample. Insert the probe in the material vertically to penetrate the mass. Discharge the sample into a container. To improve sample representation, replicate samples can be taken from alternative locations in the package.

6.4.1 The use of a probe can cause attrition; therefore, the probe sampling procedure is not recommended when sampling for particle size determination.

6.5 *Sampling Segregated Materials*—Where material may have undergone segregation, the following procedures are recommended.

6.5.1 Sample bulk materials during unloading.

6.5.2 Turn drummed materials end over end and roll prior to probing.

6.5.3 The following procedure can be used for material in bags: Orient the bag in the sample position (horizontally or vertically) in which it was received. Refer to Fig. 2, a horizontally oriented bag. Open the end of the bag and insert the probe through Zones A, B, and C.

7. Test Method to Reduce Gross Sample

7.1 Reduce the gross sample to a representative, suitable size for laboratory purposes using a method that provides a final sample that retains the character representation of the original material. Methods such as quartering or riffling are acceptable.

8. Precision and Bias

8.1 This procedure yields comparative data. The pass/fail aspect of the procedure should be determined by applicable specifications.

9. Disposal of Sample

9.1 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.

10. Keywords

10.1 grain thief; granular carriers; pesticides; sample splitter; sampling

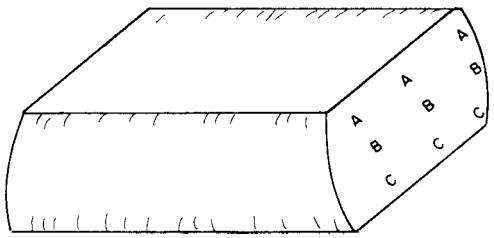

FIG. 2 Bag Sampling Scheme

[2] Scott, W. W., *Standard Methods of Chemical Analysis*, D. Van Nostrand Co., Inc., New York, NY, 1935, p. 1305.