This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

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Standard Practice for Core Sampling of Raw Wool in Packages for Determination of Percentage of Clean Wool Fiber Present[1]

This standard is issued under the fixed designation D1060; 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 practice for sampling covers a procedure for obtaining samples from lots of grease, pulled, or scoured wool or related animal fibers in bales or bags for the determination of the clean wool fiber present by a procedure similar to that described in Test Method D584.

1.2 This practice provides a description of suitable core sampling equipment, the sampling procedure, and the method for determining the number of packages to be bored and the number of cores to be taken from each sampled package.

1.3 Reliable estimates are given for the standard deviation of the percentage clean wool fiber present between packages and within packages for lots of many types of raw wool.

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.5 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D123 Terminology Relating to Textiles

D584 Test Method for Wool Content of Raw Wool—Laboratory Scale

E105 Practice for Probability Sampling of Materials

E122 Practice for Calculating Sample Size to Estimate, With Specified Precision, the Average for a Characteristic of a Lot or Process

D4845 Terminology Relating to Wool

3. Terminology

3.1 For all terminology relating to D13.13, Wool and Wool Felt, refer to Terminology D4845.

3.1.1 The following terms are relevant to this standard: *clean wool fiber present, core and raw wool.*

3.2 For definitions of other textile terms used in this practice, refer to Terminology D123.

4. Summary of Practices

4.1 The lot is core sampled in accordance with one of a series of equivalent schedules based on estimates of variability of the percentage clean wool fiber present and on the required level of precision. A set of packages of wool is taken as a lot sample. From each package in the lot sample, a fixed number of cores of wool is drawn to be used as a laboratory sample. Guidance in the selection of the most economical of the equivalent schedules is provided.

5. Significance and Use

5.1 Core sampling is widely accepted, when applicable, for obtaining a laboratory sample representative of the clean wool fiber present in a lot of packaged raw wool.

5.2 If the wool is so loosely packed that a core cannot be cut, or if it is so highly compressed that the sampling tool cannot readily penetrate into the package to the required depth and in the required direction, core sampling is not applicable. The density of wool in most types of commercial packages is suitable for sampling by this method.

5.3 The procedure described in this practice is adapted to the application of statistical methods for estimating the size of sample required to achieve a required level of sample precision at minimum cost.

NOTE 1—The basic sampling equipment, operating procedure, and

[1] This practice is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.13 on Wool and Felt.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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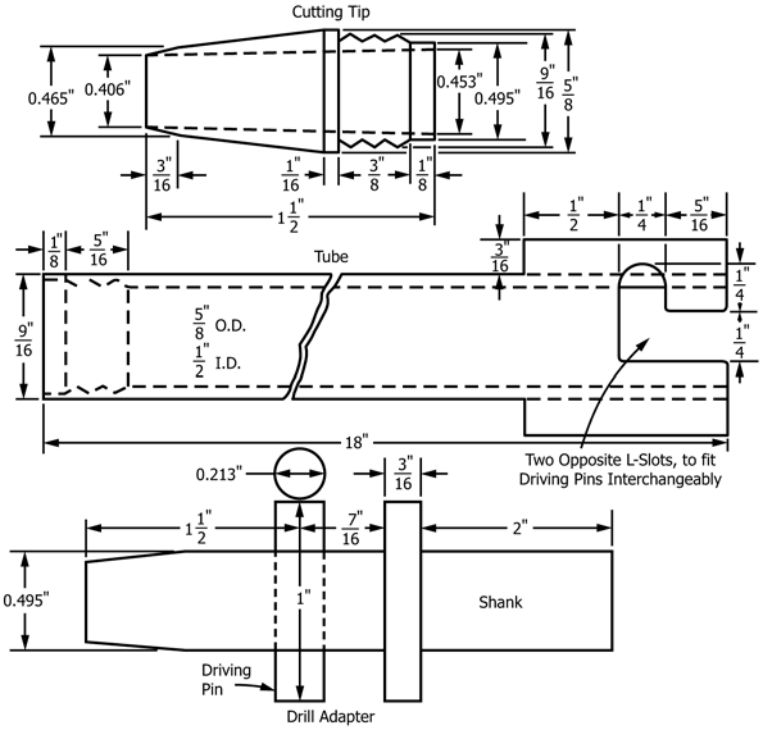

(Metric equivalents may be calculated by multiplying inches by 25.4 to obtain equivalent dimensions in millimetres.)

FIG. 1 Small Diameter Wool Sampling Tool (United States Customs Service)

statistical approach used in this practice have been adapted for sampling lots of wool for the determination of other properties that are not affected by boring, such as average fiber diameter, and for sampling lots of other bulk fibers in packages.

6. Apparatus

6.1 *Sampling Tool*[3]—A tube equipped with a cutting edge, together with a drill, hammer, press, or similar device, and accessories. The tube must be capable of penetrating the required distance (see 7.2) into a package of wool and cutting a core therefrom, which core must be retained substantially unchanged within the tube during its withdrawal from a package.

6.1.1 Fig. 1 illustrates the design of a recommended type of rotatable small-diameter wool sampling tube.

6.1.2 Sampling tubes in common use range from approximately ½ to 2 in. (13 to 50 mm) in diameter, and from 10 to 40 in. (250 to 1000 mm) in length.

6.1.3 Some types of sampling tubes are equipped with receptacles at the rear of the tube.

6.1.4 Drills of ½ hp (375 w) rotating at 200 to 550 rpm (3.3 to 10 rps), have been found to be satisfactory.

6.1.5 A toothed cutting edge on a rotating tube of small diameter, instead of the smooth edge illustrated in Fig. 1, is acceptable provided that for any specific design it has been shown that a bias is not introduced thereby. The absence of bias in samples obtained with a rotating 2-in. (50 mm) diameter tube with a toothed cutting edge has been demonstrated.

6.2 *Sample Container*—A container with closure of such material and so constructed that a sample stored therein will not show a material change in its moisture content during the interval between sampling and weighing the sample for test.

7. Sampling Procedure

7.1 *Time of Sampling*—Take the sample at or about the time the lot is weighed.

7.2 *Depth of Penetration*—Penetrate a bale of wool with the sampling tube to a depth such that substantially all parts of the package can be reached. Maintain the same depth of penetration for each core taken from a given lot.

7.3 *Location of Borings:*

7.3.1 Consider a package as composed of eight sections approximately equal in volume, defined by top or bottom, front or back, left or right.

7.3.2 Alternate the location of boring in such a fashion that the total composite sample will consist of approximately the same number of cores from each section of the packages.

7.3.3 If the packages have been compressed in a baling press, enter a package through a compression surface and in a direction normal to that surface.

7.4 Whenever there is danger that loose sand or other material may drop out of the tube during or after boring, so position the package that the direction of boring will be horizontal.

[3] The sole source of supply of the apparatus known to the committee at this time is Yocom-McColl Testing Laboratories, Inc., 540 Elk Place, Denver, CO 80216. If you are aware of alternative suppliers, please provide this information to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,[1] which you may attend.