



Designation: D 4524 – 86 (Reapproved 1994)

Standard Test Method for Composition of Plumage¹

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1. Scope

1.1 This test method covers the quantitative determination of the components found in plumage. The test method is applicable for plumage found in bulk form or in finished consumer products.

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:

- D 123 Terminology Relating to Textiles²
- D 1776 Practice for Conditioning Textiles for Testing²
- D 2905 Practice for Statements on Number of Specimens for Textiles²
- D 2906 Practice for Statements on Precision and Bias for Textiles²
- D 4523 Terminology Relating to Feather-Filled and Down-Filled Products³

2.2 Other Documents:

- Fed Std. No. 148a–1964 Method 2: Determination of Composition Feather Filling Materials⁴
- ABFLO: Quantitative Determination of Feather and Down in Plumage⁵
- FTC Guides for the Feather and Down Products Industry, 1971⁶

3. Terminology

3.1 Definitions:

3.1.1 *plumage, n*—the outgrowth of fowl, consisting of feathers and down (waterfowl) or feathers only (nonwaterfowl).

3.2 For the definitions of terms used in this standard, refer to

Terminology D 123 and Terminology D 4523.

4. Summary of Test Method

4.1 A representative sample of plumage is selected from the product being tested. The contents of the sample are identified and separated into component parts. Those component parts are measured and reported as a percentage of the whole.

5. Significance and Use

5.1 This test method may be used for acceptance testing of commercial shipments of bulk plumage. Acceptance tolerances of content must be established between the purchaser and seller of bulk shipments of plumage, which also must comply with state and federal agency regulations, as appropriate.

5.1.1 In case of a dispute arising from differences in reported test results when using Test Method D 4524 for acceptance testing of commercial shipments, the purchaser and the supplier should conduct comparative tests to determine if there is a statistical bias between their laboratories. Competent statistical assistance is recommended for the investigation of bias. As a minimum, the two parties should take a group of test specimens that are as homogeneous as possible and that are from a lot of material of the type in question. The test specimens should then be randomly assigned in equal numbers to each laboratory for testing. The average results from the two laboratories should be compared using Student's *t*-test for unpaired data and an acceptable probability level chosen by the two parties before the testing is begun. If a bias is found, either its cause must be found and corrected or the purchaser and the supplier must agree to interpret test results in the light of the known bias.

5.2 This test method may also be applicable to the acceptance of consumer products that use plumage as a filling material. Such consumer products include pillows, comforters, sleeping bags, garments, furniture, and mattresses. Acceptance tolerances of content are established by distributors, importers, state or federal regulatory agencies. See 5.1.1.

6. Apparatus

6.1 *Separating Cabinet*—A box or cabinet for separating and identifying the components of plumage. The box should have the following approximate dimensions:

- Base—450 by 300 mm (18 by 12 in.) wide
- Front—150 mm (6 in.) high
- Back—300 mm (12 in.) high

¹ This test method is under the jurisdiction of ASTM Committee D-13 on Textiles and is the direct responsibility of Subcommittee D 13.61 on Apparel.

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² *Annual Book of ASTM Standards*, Vol 07.01.

³ *Annual Book of ASTM Standards*, Vol 07.02.

⁴ Available from the General Services Administration Business Service Center, Washington, DC 20407.

⁵ Available from Association of Bedding and Law Officials, Texas Dept. of Health, 1100 W. 49th St., Austin, TX 78756.

⁶ Available from the Federal Trade Commission, 6th St. and Pennsylvania Ave. N.W., Washington, DC 20580.