



Standard Test Method for pH of Aqueous Extracts of Wool and Similar Animal Fibers¹

This standard is issued under the fixed designation D 2165; 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 pH of aqueous extracts from wool and similar animal fibers. It is applicable to fibers in any condition—raw wool, scoured wool, sliver, top, yarn, or fabric.

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 precautionary statements, see Section 11.

2. Referenced Documents

2.1 ASTM Standards:

D 123 Terminology Relating to Textiles²

D 2525 Practice for Sampling Wool for Moisture²

E 70 Test Method for pH of Aqueous Solutions with the Glass Electrode³

3. Terminology

3.1 Definitions:

3.1.1 *aqueous extract, n*—in wool testing, the solution obtained by digesting a material with water or with a sodium chloride solution to dissolve soluble materials.

3.1.2 *pH, n*—in common usage, a measure of acidity or alkalinity of a solution, on a logarithmic scale, with neutrality represented by a value of seven, with increasing acidity represented by decreasingly smaller values, and with increasing alkalinity represented by increasingly larger values.

3.1.2.1 *Discussion*—For a technical discussion of pH, including such phenomena as the effect of temperature on pH, see any recognized chemistry text. The pH of textiles is generally determined on aqueous extracts of the textile being tested.

3.1.3 For definitions of other textile terms used in this test method, see Terminology D 123.

4. Summary of Test Method

4.1 An extract is prepared using distilled water or 0.1 N

sodium chloride solution at the boil under reflux, or at room temperature with agitation. The pH of the extract is measured electrometrically with a glass electrode.

5. Significance and Use

5.1 The pH values of the extracts give an indication of the acidity or alkalinity of the fiber and its water-soluble impurities. These values are useful in indicating previous processing and in anticipating subsequent performance. For particular purposes, the pH of an extract prepared by one method may be a more informative index than another and as a consequence four optional extraction procedures are included.

5.2 This test method is not recommended for acceptance testing because the between-laboratory precision is relatively poor. In some cases, the purchaser and the seller may have to test a commercial shipment of one or more specific materials by the best available method, even though the method has not been recommended for acceptance testing of commercial shipments. In such a case, if there is disagreement arising from differences in values reported by the purchaser and the seller when using this method for acceptance testing, the statistical bias, if any, between the laboratory of the purchaser and the laboratory of the seller should be determined, with each comparison being based on testing specimens randomly drawn from one sample of material of the type being evaluated.

6. Apparatus and Materials

6.1 All glassware coming in contact with the liquid shall be of a chemical-resistant glass,⁴ in which the contacting surfaces have been soaked for two days in 0.1 N hydrochloric acid and then rinsed thoroughly with distilled water (see 7.1) until the rinsings have a pH of 6.0 or higher.

NOTE 1—It is desirable but not mandatory that the glassware be reserved for extraction tests only and be filled with distilled water during storage between tests.

6.2 Apparatus for Extraction at Room Temperature:

6.2.1 *Erlenmeyer Flasks*, 250-ml, wide-mouth, with ground-glass stoppers.

6.2.2 *Laboratory Shaker or Agitator*, with apparatus for attaching the flasks, holding at least three flasks, to provide agitation that will not raise the temperature more than 5.5°C in 2 h.

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

³ *Annual Book of ASTM Standards*, Vol 15.05.

⁴ Borosilicate glass has been found satisfactory.