Designation: D 2876 – 00

Standard Test Method for Water-Soluble Matter of Vegetable-Tanned Leather[1]

This standard is issued under the fixed designation D 2876; 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 water-soluble materials in all types of vegetable-tanned leathers. This test method does not apply to wet blue.

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 3495 Test Method for Hexane Extraction of Leather[2]

3. Summary of Test Method

3.1 The test method gives the amount of water-soluble matter extracted from the leather at 35°C by 1 L of water in 3 h. The leather is first freed of hexane-extractable material by extraction with hexane and leaving at ambient temperature in an exhaust hood to remove the hexane.

4. Significance and Use

4.1 The test method is useful for determining the water-soluble materials in vegetable-tanned leathers.

4.2 The water-soluble matter includes the soluble nontanning components of the tanning materials used, sugars and materials of a similar nature, and inorganic compounds such as Epsom salts, Glauber's salts, borax, and other soluble salts added during curing and tannery processing.

5. Apparatus

5.1 *Crystallizing Dish*, borosilicate glass, 50 mm tall, 70 mm in outside diameter, and weighing between 30 and 39 g.

5.2 *Extractor, Reed-Churchill Type*[3]—The extraction tube shall have an internal diameter of 45 ± 2 mm and a length of 233 ± 10 mm. See Fig. 1.

5.3 *Water Bath*, equipped to control the temperature at 35 ± 0.5°C.

5.4 *Circulating Air Oven*, capable of maintaining a temperature of 99 ± 1°C.

6. Test Specimen

6.1 The specimen shall consist of the 5-g leather sample that has been extracted with hexane as directed in Test Method D 3495. Any deviation from this sample size should be included with the analytical results.

7. Procedure

7.1 Insert a plug of cotton or glass wool in the extraction tube before the specimen is added. Place the specimen in the extraction tube, slurry, and extract at 35°C by adjusting the flow to such a rate as to give 1 L of extract in 3 h. Cool the extract to 23°C, adjust to volume, and thoroughly mix.

7.2 If the extract is clear, pipet 100 mL into a tared crystallizing dish, evaporate and dry in a circulating air oven at 99 ± 1°C for 16 to 18 h, transfer to a desiccator, cool, and weigh.

7.3 If the extract is not clear, filter it. During this and subsequent operations, keep funnels and containers covered to prevent changes due to evaporations. Carry out all operations at an ambient temperature of 23 to 25°C. Place a 215-mm diameter filter paper,[4] pleated so that it contains 32 evenly divided creases, into a 125-mL funnel. To 2.0 g of kaolin (see Note 1) in a clean glass container add 25 mL of the extract and stir the mixture to a smooth paste. Add a further 200 mL of the extract and again stir the mixture to a uniform suspension. Pour the suspension onto the pleated paper in the funnel and collect

[1] This test method is under the jurisdiction of ASTM Committee D31 on Leather and is the direct responsibility of Subcommittee D31.01 on Vegetable Leather. This test method was developed in cooperation with the American Leather Chemists Assn. (Standard Method B 8–1954).

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[2] *Annual Book of ASTM Standards*, Vol 15.04.

[3] Reed, H. C. and Churchill, J. B., "An Extractor for Water Soluble in Leather," *Journal of the American Leather Chemists Association*, JALCA, Vol 14, 1919, p. 137.

[4] The sole source of supply of approved filter paper (C.S. and S. No. 610) for tannin determinations known to the committee at this time is Carl Schleicher and Schuell Co., Keene, NH. 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.