



Standard Test Method for Water Absorption (Static) of Vegetable Tanned Leather¹

This standard is issued under the fixed designation D 1815; 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 amount of water absorbed by leather at $23 \pm 2^\circ\text{C}$ by immersion under static conditions. It may be used on all types of leather, but is particularly adapted to vegetable-tanned sole leather. 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 1516 Test Method for Width of Leather²

D 1517 Terminology Relating to Leather²

D 1813 Test Method for Measuring Thickness of Leather Test Specimens²

3. Terminology

3.1 For definitions of leather terms used in this standard refer to Terminology D 1517.

4. Summary of Test Method

4.1 In this test method the amount of water absorbed by a leather specimen is measured at room temperature with all surfaces exposed to water.

5. Significance and Use

5.1 This test method is currently used to determine compliance with specifications for water absorption of impregnated sole leather. The significance of the test method is limited by the static conditions employed, and the results do not reflect the water absorption under the dynamic conditions of flexing. The result may be corrected, if required, for any water-soluble material removed from the leather during the test.

6. Apparatus

6.1 *Immersion Dish*, glass or other noncorrosive material,

having a flat bottom at least 3 by 5 in. (76 by 127 mm).

6.2 *Balance*, sensitive to 0.01 g.

6.3 *Steel Scale or Tape*, conforming to the requirements in Section 2 of Test Method D 1516.

6.4 *Thickness Gage*, conforming to the requirements in Section 3 of Test Method D 1813.

6.5 *Blotting Paper or Filter Paper*.

6.6 *Drying Oven*.

6.7 *Pieces of Glass Rod*, for supporting and weighting the specimen.

6.8 *Crystallizing Dish*, borosilicate glass, 50 mm tall, 70 mm in outside diameter.

7. Test Specimen

7.1 The test specimen shall be a rectangle of leather approximately 2 by 4 in. (51 by 102 mm).

7.2 Unless otherwise specified in the detail specification, one specimen from each test unit of sample shall be tested.

8. Procedure

8.1 Determine the length, width, and thickness of the specimen in accordance with Test Method D 1516 and Test Method D 1813. Calculate its volume in cubic centimetres.

8.2 Weigh the specimen to the nearest 0.01 g and record this mass as W_1 .

8.3 Place the specimen in the immersion dish in a horizontal position with the grain side up. Support it on glass rods or beads and weighted with pieces of glass rod to keep it immersed. Carefully pour distilled water at $23 \pm 2^\circ\text{C}$ into the dish until the specimen is fully immersed, using at least 10 g of water per gram of specimen.

8.4 Leave the specimen immersed for a period of 30 min, 2 h, or 24 h, as required.

8.5 At the end of the immersion period, remove the specimen and blot the surface water with filter paper. Weigh the specimen immediately to the nearest 0.01 g and record this mass as W_2 .

8.6 If a further immersion time is required, reimmerse the specimen after it has been in the air for a total of 5 min, including the weighing time. The total immersion shall be considered to exclude these 5-min weighing periods.

8.7 If a correction is required for water-soluble material removed during the immersion period, proceed as follows: At the end of any immersion period stir the water in the immersion dish thoroughly, transfer it to a beaker, and weigh to the nearest

¹ This test method is under the jurisdiction of ASTM Committee D31 on Leather and is the direct responsibility of Subcommittee D31.07 on Physical Properties—General. This test method was developed in cooperation with the American Leather Chemists Assn. (Standard Method E 30 – 1956).

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