Designation: D 3285 – 93 (Reapproved 2005)

An Amrican National Standard

Standard Test Method for Water Absorptiveness of Nonbibulous Paper and Paperboard (Cobb Test)[1]

This standard is issued under the fixed designation D 3285; 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 quantity of water absorbed in a specified time by nonbibulous paper and paperboard with a minimum thickness of 0.1 mm. This test method is generally applicable to sized paper and paperboard, but is not recommended as a sizing test for writing papers. The test method is based upon studies by Cobb and Loew, Cobb, and other investigators (**1**, **2**, **3**, **4**).[2]

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:* [3]

D 585 Practice for Sampling and Accepting a Single Lot of Paper, Paperboard, Fiberboard, and Related Product

D 685 Practice for Conditioning Paper and Paper Products for Testing

D 824 Test Method for Rate of Absorption of Water by Bibulous Papers

3. Significance and Use

3.1 Water absorptiveness is a function of various characteristics of paper or board, including sizing, porosity, and fiber composition.

3.2 This test method is useful in comparing various sheets or nonbibulous (not highly absorbent) paper or paperboard as to the relative rate of penetration of aqueous solutions, such as adhesives or coatings. It will indicate to some degree the surface and internal sizing. This test method is not intended as a water-resistance test, nor to measure the resistance to minute quantities of a liquid, such as from a writing pen.

4. Apparatus

4.1 *Water Absorption Apparatus*, to permit one side of the specimen to be wetted uniformly at the moment the soaking period begins, and to allow controlled rapid removal of the water from the specimen at the end of the test period. The specimen holder as shown in Fig. 1 comprises a metal ring with a machined lower face, 11.28 ± 0.02-cm inside diameter (corresponding to a cross-sectional area of 100 cm^2), 2.5 cm high and about 0.6 cm thick, clamped to a flat base plate about 15 by 15 cm with a metal cross bar 17 by 2.5 by 0.6 cm and two wing nuts on a pair of studs. The cross bar has a hole at one end and a slot at the other to facilitate assembly and use. On the base plate is a rubber mat, larger than the outside dimensions of the ring, on which the specimen is clamped.

NOTE 1—The metal parts should preferably be of brass or other corrosion-resistant material.

NOTE 2—Several versions of the water absorption apparatus are now available. Although the basic procedure for performing the test is not changed, the clamping mechanism is. This may affect the time required to remove the specimen from the apparatus.

4.2 *Metal Roller*, solid brass having a smooth face 20 cm wide and weighing 10.0 ± 0.5 kg.

4.3 *Timer*, stopwatch or electric timer reading in seconds.

4.4 *Graduated Cylinder*, 100 mL.

4.5 *Balance*, with an accuracy of 0.01 g, or better.

5. Reagents and Materials

5.1 *Water*, distilled or deionized.

5.2 *Blotting Paper*, a quantity of sheets of standard blotting paper, 200 mm^2(8 $in.^2$), weighing 250 ± 10 g/m^2 oven-dry, 0.495 to 0.521 mm (0.0195 to 0.0205 in.) thick, and having a rate of absorbency of 25 s or less when tested with 1.0 mL of water in accordance with Test Method D 824. The blotter must have a capillary rise of 50 to 100 mm of water (mean of MD and CM) when measured by the Klemm Test (see annex).

[1] This test method is under the jurisdiction of ASTM Committee D06 on Paper and Paper Products and is the direct responsibility of Subcommittee D06.92 on Test Methods.

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[2] The boldface numbers in parentheses refer to the list of references at the end of this test method.

[3] 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.