



Standard Test Method for Applied Coating Wax and Impregnating (Saturating) Wax in Corrugated Board Facing¹

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1. Scope

1.1 This test method covers the determination of the weight of wax that has been applied for coating of corrugated board, and the amount of impregnating (saturating) wax in the same facing.

1.2 This test method is especially applicable to board that has a coated surface and also contains wax saturation within the facing structure.

NOTE 1—The amount of surface wax on board that may or may not contain impregnating (saturating) wax within its structure may be determined alternatively by Test Method D 3521. If it is known that the specimen has coating wax only, with no internal impregnating wax, the total coating wax applied may be determined by Test Method D 3344.

1.3 *This standard does not purport to address all of the safety problems, 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 hazard statements, see Note 4.

2. Referenced Documents

2.1 ASTM Standards:

D 585 Practice for Sampling and Accepting a Single Lot of Paper, Paperboard, Fiberboard, or Related Product²

D 3344 Test Method for Total Wax Content of Corrugated Paperboard³

D 3521 Test Method for Surface Wax Coating on Corrugated Board³

3. Terminology

3.1 Definitions:

3.1.1 *weight percent impregnating wax*—the weight percent of wax in the facing relative to the weight of unwaxed facing measured at 23°C (73°F) and 50 % relative humidity.

3.1.2 *weight of applied coating wax*—the weight of applied coating per unit area of board, usually grams per square metre or pounds per thousand square feet of board covered.

4. Summary of Test Method

4.1 The coated facing is peeled from the medium and then split into two layers, one bearing the coating on waxed fibers and one containing the waxed fibers only. The layers are extracted separately, collecting both fibers and wax, leading to a calculation of the applied surface coating wax and the amount of impregnating wax.

5. Significance and Use

5.1 The resistance of corrugated fiberboard shipping containers to damage by moisture is improved by wax treatment, and a common practice involves a light wax saturation applied to the medium and facings, followed by a curtain coating or roll coating operation applying wax to the surface. The functional performance of the board is dependent upon the amount of wax deposited in each operation.

5.1.1 For the wax impregnation within the facing, the principal concern is with the weight of wax used relative to the weight of paperboard present, that is, the weight percent loading or pickup. This method measures that loading and assumes that the loading is distributed uniformly throughout the facing. However, the method does not provide a measure of the weight of impregnating wax per unit area, since not all of the facing fibers are utilized in the testing.

5.1.2 For the wax coating the principal concern is in the weight of wax present on the surface per unit area. This method measures the amount of material applied, and assumes that the major portion of molten coating applied will congeal and remain on the surface, without undue migration into the fibrous structure of the medium.

NOTE 2—In a typical curtain coating application, a portion of the coating will partially migrate into and become embedded in the fibers of the facing to the extent of about 10 % of the coating applied.

5.1.3 These procedures involve extractions of designated sections of the paperboard and determination of the extractable material reported as wax. This assumes that the nonwax extractables in the paperboard substrate are in negligible amount (for example, about 0.2 weight %).

NOTE 3—If the application of a correction for nonwax extractables is desired, a suitable unwaxed board specimen may be extracted and appropriate calculations made.

6. Apparatus

6.1 *Sample-Trimming Equipment*—A suitable trimming

¹ This test method is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.10.01 on Physical and Chemical Properties.

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² Annual Book of ASTM Standards, Vol 15.09.

³ Annual Book of ASTM Standards, Vol 05.02.