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Technical Association of
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Suggested Method T642 su-64

AMERICAN SOCIETY FOR TESTING AND MATERIALS

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Standard Test Method for SEALING STRENGTH OF PETROLEUM WAX¹

This standard is issued under the fixed designation D 2005; 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.

This method was prepared jointly by the Technical Association of the Pulp and Paper Industry and the American Society for Testing and Materials.

1. Scope

1.1 This method covers the determination of the sealing strength of petroleum wax when applied to a standard test paper. It is applicable only to those waxes which do not cause fiber tear of test paper.

2. Applicable Documents

2.1 ASTM Standards:

D 938 Congealing Point of Petroleum Waxes Including Petrolatum²

D 2423 Test for Surface Wax on Waxed Paper or Paperboard³

E 1 Specification for ASTM Thermometers⁴

3. Summary of Method

3.1 The wax is applied to a standard paper in a controlled amount. The paper is cut into sheets and sealed by passing over a heated bar at a specified temperature. After a conditioning period, test specimens are cut into a standard width and then separated, under specified conditions of temperature and humidity, by a power-driven testing machine. Strength values are recorded, and the average of five test specimens is reported as the sealing strength.

4. Significance

4.1 This method can be related to the performance of petroleum wax as used in the manufacture of heat-sealable waxed paper. Other types of paper or web material may give different results. The magnitude of the sealing strength results can be affected by variations in the moisture content of the paper, the wax coating weight, and the rate of separation of the sealed specimen. Many waxes give signifi-

cantly higher results when the waxed paper is rapidly chilled immediately after sealing the specimen.

5. Definition

5.1 *sealing strength*—the force, expressed in grams per millimetre width necessary to separate two strips of standard paper, 100 mm in width, prepared under controlled conditions, and separated at an angle of 180° under standard conditions of temperature, humidity, and speed.

6. Apparatus

6.1 *Wax Coating Device*—A manual or machine-driven waxer capable of preparing a waxed paper web not less than 127 mm (5 in.) wide. Means shall be provided to wax both sides of the paper and to control the weight of surface wax on one side of the paper 8.1 ± 0.3 g/m² (5 + 0.2 lb/ream) (610 by 914 mm (24 by 36 in.), 500 sheets) with 3.25 to 6.5 g/m² (2 to 4 lb/ream) on the other side. A means of temperature control on the wax bath shall be provided.

6.2 *Sealing Machine*—A power-driven device capable of sealing 127 mm (5 in.) wide waxed sample at the rate of 635 ± 20 mm (25 ± 0.79 in.)/min. Means shall be provided for regulating the temperature of the heated cyl-

¹ This method is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants.

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² Annual Book of ASTM Standards, Part 23.

³ Annual Book of ASTM Standards, Part 24.

⁴ Annual Book of ASTM Standards, Parts 25 and 44.