



Standard Test Method for Noninterference of Adhesives in Repulping¹

This standard is issued under the fixed designation D 5999; 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 repulpability of adhesives and adhesive coated products under normal repulping conditions in a papermaking environment. This test method does not address the impact of these adhesives on the process water, or its suitability with different substrates, backings, or facings. (Additional testing may be required to address the effect of soluble adhesives depending on the papermaking environment.)

1.2 This general method does not measure or predict repulpability in cases of extremely acidic or alkaline repulping conditions, but the method can be extended suitably to those conditions.

1.3 *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 907 Terminology of Adhesives²

2.2 TAPPI Standard:

T 205 Test Method for Forming Handsheets for Physical Tests of Pulp³

3. Terminology

3.1 Definitions:

3.1.1 Several terms in this test method are defined in accordance with Terminology D 907.

4. Significance and Use

4.1 This test method evaluates the repulpability of adhesives in normal papermaking environments and helps the adhesive or adhesive coated product (label, tape, etc.) manufacturer prepare materials that incorporate repulpable adhesives. To the end user, this test method provides a useful approach in prescreening the repulpability of the adhesives used on tapes,

adhesives used for labels, and the adhesives used in the joining, seaming, and closing of products constructed of paper.

5. Apparatus

5.1 The following apparatus is required for this test method:

5.1.1 *Balance*, capable of weighing the material accurately to the nearest percent.

5.1.2 *TAPPI/British Disintegrator*.³

5.1.3 *Image Analyzer or Formation Tester*.

5.1.4 *TAPPI Handsheet Mold*.³

5.1.5 *Hand Sheet Dryer*.

5.1.6 *Flat Screen*, with a $<$ or $=$ to 0.006-in. screen, or equivalent.

5.1.7 *Centrifuge*.

5.1.8 *Blotter Paper*, JR 411-01-11, or equivalent.

5.1.9 *Drying Oven*.

5.1.10 *Transparent Centrifuge Jars*, 250-mL capacity.

5.1.11 *A pH Meter*.

5.1.12 *Sulfuric Acid*, 0.1 %.

5.1.13 *Sodium Hydroxide*, 1N, for adjusting pH of pulping solutions.

5.1.14 *Filter Bag*, 3 μ m.

6. Test Specimens

6.1 Test specimens are prepared using 2 L of sample at 3 % consistency and containing 1 % adhesive or adhesive coated product, contamination based on the dry weight of paper used under room conditions. Approximately 60 g of this material is needed.

6.2 The size of the sample sheet is approximately 0.5 by 0.5 in.

6.3 The preferred paper to be used is JR 411-01-11 blotter paper.⁴

7. Sample Preparation

7.1 Apply adhesive to blotter squares uniformly as is relevant to the application. Measure the weights of the adhesive or adhesive coated product used.

7.2 Repulp this sample under any one set of the following conditions in a TAPPI/British Disintegrator:

7.2.1 *Consistency*—3 %.

7.2.2 *pH*—6, 7, 8. The pH may be adjusted using H₂SO₄(0.1 %) or NaOH (1N).

¹ This test method is under the jurisdiction of ASTM Committee D-14 on Adhesives and is the direct responsibility of Subcommittee D14.06 on Impact of Adhesives on Paper Recycling.

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² *Annual Book of ASTM Standards*, Vol 15.06.

³ Available from the Technical Association of the Pulp and Paper Industry, P.O. Box 105113, Atlanta, GA 30348.

⁴ Available from James River Corp., Neenah Technical Center, 1915 Marathon Ave., Neenah, WI 54956, or equivalent may be used.