



Standard Test Methods for Identification of Wire Side of Paper¹

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1. Scope

1.1 The test methods describe procedures for identifying the wire side of paper made on a one-wire fourdrinier paper machine.

1.2 It is desirable to have means of distinguishing between the two sides because they generally differ in some physical and chemical characteristics. It is not always possible to identify the sides, particularly with coated and other surface-treated papers, certain high-grade papers made from well-beaten rag stock and specialties made with variations in the usual paper-making practices. If one procedure does not give a definite identification, the other procedures should be tried. Nevertheless, if any one of the following procedures gives a clear result, identification is established.

1.3 The procedures in these test methods are not applicable to paper made on cylinder, twin-wire, or other special machines.

1.4 *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 1968 Terminology Relating to Paper and Paper Products²

3. Terminology

3.1 *Definitions*—Definitions shall be in accordance with Terminology D 1968 and the *Dictionary of Paper*.³

4. Summary of Test Methods

4.1 These test methods consist of a series of six procedures found suitable for identifying the wire side of paper, as follows:

¹ These test methods are under the jurisdiction of ASTM Committee D06 on Paper and Paper Products and are the direct responsibility of Subcommittee D06.92 on Test Methods.

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² *Annual Book of ASTM Standards*, Vol 15.09.

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

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5. Significance and Use

5.1 The wire and felt sides of a sheet of paper generally differ in some physical and optical characteristics⁴ so it is desirable to have some means of distinguishing between them.

6. Procedure A—Direct Observation

6.1 Fold a specimen sheet of paper so that both sides are visible at the same time.

6.2 Observe the relative surface appearance of structure of the two sides by holding the specimen in a horizontal position with the light striking at a very low angle (less than 10°) and the line of vision normal to the light path. Varying the angles of illumination and viewing and rotating the sheet in a horizontal plane may more clearly bring out the wire marks. Look for rectangular or diamond-shaped impressions made by the machine wire, which identify the wire side. A low-power binocular microscope is helpful. Do not confuse the larger and irregular pattern of felt marks with the regular and finer pattern of wire marks. These wire marks are invariably smaller than 2 mm.

7. Procedure B—Carbon Smudge

7.1 Make a black smudge or mark on the paper surface by wiping with a small piece of carbon paper held between the thumb and middle or forefinger, so that the finger presses the black surface of the carbon paper into the surface of the paper under test. Using considerable pressure, slowly pull the carbon paper along the surface of the specimen, thus producing a black mark about ½ in. (12 mm) in width and 2 to 3 in. (51 to 76 mm) in length. During this operation, support the specimen on a smooth surface such as plate glass. Make such a mark on both sides of the specimen across both the machine and cross

⁴ Casey, J. P., *Pulp and Paper Chemistry and Chemical Technology*, Second edition, Vol 3, New York, 1961, pp 1256, 1257.

