



Standard Test Method for Curl in Carbon Paper¹

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ε¹ NOTE—Keywords were added in February 2000.

1. Scope

1.1 This test method covers the determination of curl of carbon paper.

1.2 This test method may be used for specification acceptance, manufacturing control, development, and research.

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 585 Practice for Sampling and Accepting a Single Lot of Paper, Paperboard, Fiberboard, and Related Products²

D 685 Practice for Conditioning Paper and Paper Products for Testing²

E 104 Practice for Maintaining Constant Relative Humidity by Means of Aqueous Solutions³

F 221 Terminology Relating to Carbon Paper and Inked Ribbon Products and Images Made Therefrom²

3. Terminology Definitions

3.1 Refer to Terminology F 221.

4. Summary of Test Method

4.1 Sheets of carbon paper are placed on a flat surface under different conditions of humidity and with a controlled temperature. The amount of curl is expressed as height above a flat surface attained by the edge of a carbon paper sheet.

5. Significance and Use

5.1 This test method is intended to measure the amount of curl of a carbon paper sheet relative to the flat surface supporting the sample. The test is useful as a quality control method and for predicting field performance.

6. Apparatus

6.1 *Template*, 3-in. (76-mm) square, metal.

6.2 *Rule*, 6-in. (or an equivalent metric rule 150 mm). The rule shall be graduated either in inches with 0.1-in. subdivisions or in centimetres with 1-mm subdivisions, and the zero mark must be at the edge of the rule. Also, the width of the rule should be a minimum of ½ in. (12.7 mm) to facilitate supporting the rule in an upright perpendicular position relative to the flat supporting surface.

6.3 *Conditioning Cabinets*—Three humidity cabinets, electric with positive uniform air circulation, capable of maintaining the relative humidity and temperature ranges specified. The cabinets should be free of any hygroscopic materials such as wood, fabric, paper, etc.; sealed from external moisture and either insulated from external temperature changes or used in a room maintained at constant temperature. The cabinets should be small. A useful configuration can be constructed as follows: transparent sides, 14 in. wide by 8 in. high by 26 in. long (metric units 356 by 203 by 660 mm). The front shall overlap the sides and be hinged to serve as the door. During the conditioning interval, the front door shall be sealed. An inverted 6-in. (152-mm) rule can be supported on each wall of the conditioning cabinet to facilitate testing. The zero mark of the rule shall coincide with the top of the shelving upon which the sample is placed. A glass tray holding a saturated salt solution shall be placed on the bottom of the conditioning cabinet and below the shelving which is perforated to assist circulation. Chambers that mechanically control humidity, rather than with salts, are also acceptable.

6.4 *Hygrometer*, accurate to ±1% relative humidity over a range of 20 to 80% relative humidity.

6.5 *Shelving*—Flat wire screens or similar shelving sufficiently rigid to hold its flatness, to fit inside the conditioning cabinets, approximately 3 in. (75 mm) above the bottom of the cabinets. They shall be so constructed as to allow uniform air circulation.

7. Reagents

7.1 Reagents for maintaining appropriate relative humidities are shown in Table 1. (See Practice E 104.)

7.1.1 A saturated salt solution is one in which the dissolved salt is in equilibrium with undissolved material of the same composition. Therefore, in order to be certain that saturation

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

³ *Annual Book of ASTM Standards*, Vol 11.03.