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CURVATURE TEST METHOD FOR NARROW FABRIC TAPES AND WEBBING

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1. SCOPE

1.1 Scope. This method is intended for determining the curvature of narrow fabric tapes and webbings.

2. TEST SPECIMEN

2.1 Specimen. The specimen shall be a length of webbing, full width, measuring a minimum of 40 inches. The specimen shall not be stretched, smoothed, or otherwise changed from its original condition prior to testing (see FIGURE A).

3. NUMBER OF DETERMINATIONS

3.1 Number of Determinations. Unless otherwise specified in the procurement document, five determinations shall be tested from each sample unit.

4. APPARATUS

4.1 Apparatus.

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|--------------------|---|
| Plexiglas or equal | - Plexiglas weighing approximately 35 ounces with dimensions of 45 inches by 5 inches by 1/4 inch |
| Straight edge | - A rigid straight edge measuring 36 inches in length |
| Roller | - A roller 1 inch in diameter and weighing 1 1/2 pounds |

5. PROCEDURE

5.1 Preparation of specimen. Unless otherwise specified in the procurement document, material testing shall be performed under standard conditions as specified in ASTM D1776.

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5.2 The specimen. The specimens shall be placed flat, on a smooth, horizontal flat surface without tension and allowed to reach moisture equilibrium as defined in the standard textile conditions as specified in ASTM D1776. After equilibrium is reached a weight shall be placed at one end of the webbing. The roller shall be placed on the specimen at the end of the webbing where the weight is located. The specimen should be approximately in the center of the roller. The roller shall be rolled along the length of the specimen, care being taken to keep the specimen in the center of the roller and not to exert any pressure on the roller. When the roller has passed the length of the webbing, the Plexiglas shall then be placed on the specimen for a period of 1 hour. Without moving the Plexiglas on the specimen, the straight edge shall be placed on the Plexiglas so that both ends of the straight edge are aligned perpendicularly with the outermost edge of the specimen. Determine the highest degree of curvature of the specimen from the straight edge by measuring to the nearest 1/32 of an inch perpendicularly from the straight edge. Record the highest measure (see FIGURE A).

6. REPORT

6.1 Report. The average of five determinations from each sample unit shall be recorded.

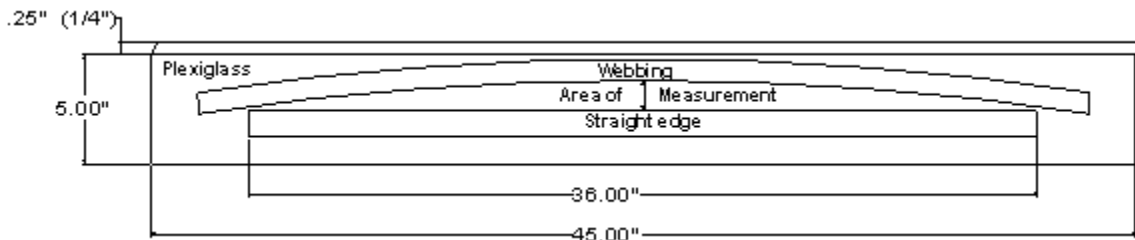


FIGURE A Lateral curvature diagram.

7. VALIDITY

7.1 Significance. This Test Method for determining Curvature of Narrow Fabrics is considered satisfactory for acceptance testing since the procedure has been used extensively in the PIA community for acceptance testing. However, this Test Method should be used with caution since interlaboratory precision has been known to be poor. It is advised to follow the Test Method exactly in order to obtain the most accurate results.

7.2 Interlaboratory disagreements. If significant variations between interlaboratory results occur, then within laboratory testing should be conducted to determine if an individual bias exists. If no within laboratory bias is found, comparative testing should be performed between multiple laboratories using controlled samples in order to determine a statistical bias.

7.3 Uses and limitations. This Test Method is applicable to the determination of Curvature in Narrow Fabrics only.

7.4 Precision. Interlaboratory testing was conducted in 2011 with three laboratories evaluating multiple narrow fabrics. The repeatability and reproducibility of the Curvature Test Method, as expressed as a percent total variation, was found to be 39.43 and 29.94 percent, respectively.