

Tearing Strength by the Tongue Tear Method
ASTM D2261

Standard Test Method for Tearing Strength of Fabric by the Tongue (Single Rip)
Procedure (Constant-Rate-of-Extension Tensile Testing Machine)

What This Test is Used For:

This test method covers the measurement of the tearing strength of textile fabrics by the tongue (single rip) procedure using a CRE-type tensile testing machine. This test measures peak force, tearing force, and tearing strength.

How This Test Works:

Rectangular specimens are placed into the CRE tester. One side of the cut end is clamped into the upper jaw and the other is clamped into the lower jaw. The jaws move apart at a constant rate until the fabric begins to tear. Depending on the nature of the specimen, the tearing force will be shown as a peak or a series of peaks. The highest peaks appear to reflect the strength of the yarns, fiber bonds, or fiber interlocks (individually or in combination) needed to continue a tear.

Scientific Testing Requirements:

When using this equipment for scientific purposes, the fabric must be allowed to reach moisture equilibrium in the atmosphere for testing textiles, or conditioned according to ASTM D-1776, Conditioning Textiles for Testing.

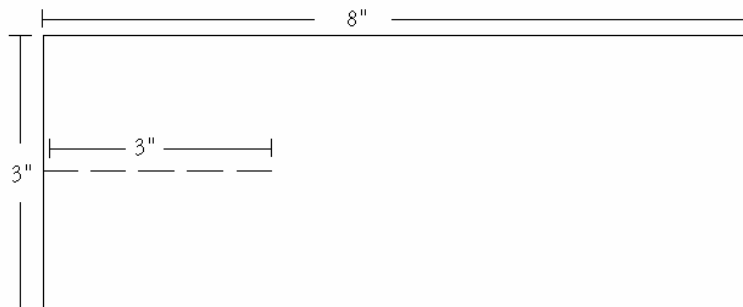
Equipment Needed:

Constant-Rate-of-Extension Tensile Testing Machine
2 pre-cut samples (3" x 8"), one sample in both warp and weft

Procedure:

Sample Preparation:

1. Cut two samples 3" by 8" (per person). One sample is cut in the warp directions, the other in the weft.
2. Make a 3" cut into the sample as shown:



Test Apparatus Preparation and Loading:

1. Set the distance between the clamps at 3 inches apart.
2. Select the full-scale force range of the testing machine so that the maximum force occurs between 10% and 90% of full-scale force.
3. Set the testing speed to 2 inches per minute.
4. Secure the specimens in the clamp jaws so that one leg of the cut end is in the upper jaw and the other leg of the cut end is in the lower jaw. Use the foot pedals to open and close the jaws. Mounted fabric should be taut but not stretched tight.

Test each of the lengthwise and crosswise samples.**Determining the Results**

1. Tearing force of the individual specimens (record to the nearest 0.1 mN):
 - a. Option 1: if there are 5 or more distinct peaks, use an average of the 5 highest peak forces to find the tearing force value.
 - b. Option 2: If there are less than 5 distinct peaks, use the highest peak force as the tearing force value.
2. Tearing Strength of all specimens: find the tearing force value by calculating the average value from the group's samples. Do this for both warp and weft directions.

Report:

1. Report that the tongue tearing strength was determined in accordance with ASTM Test Method D2261.
2. Describe the material or product sampled and the method of sampling used.
3. For each unit and the lot state:
 - a. Tongue tearing test for each testing direction and condition as requested
 - b. Calculation option used, single peak force or average of 5 highest peak forces.
 - c. Condition of the specimens when tested with or without wetting.
 - d. When calculated, the standard deviation or the coefficient of variation.
4. Identify the software used.
5. State make, model, and capacity of the testing machine.
6. Report the type of clamps used.
7. State any modification of this test method.