Lbrands

VICTORIA'S SECRET PINK La Senza

TEST METHOD LTD 03

STRETCH FABRICS – POWER AND RECOVERY

PURPOSE	To determine the stress exerted on a woven or knitted stretch fabric quality through incremental extension as well as elongation and immediate recovery at a predetermined load
APPARATUS	1. Instron® CRE tensile tester or equivalent with a low range load cell (approx. 45 kg. or 100 lb.).
TEST SPECIMENS	Cut three specimens for length testing and three specimens for width testing. Each specimen measures 3" x 10", with the long direction parallel to the fabric direction to be tested. For length direction testing, align the long direction of the template with the warp yarns (wales); for width direction testing, align the long direction of the template along the weft yarns (courses).
METHOD	1. Test in the standard atmosphere for textile testing of 21+/-1° C (70 +/- 2° F) and 65% +/- 2% relative humidity. Condition fabric for a minimum of 4 hours prior to testing. 2. Using a steel ruler, center a 5 inch marking along the 10 inch length of the fabric on all 6 specimens. See Image 1. 3. Confirm Instron® CRE tensile tester settings are as follows:

Chart Speed	10 inches/minute
Cross Head Speed	20 inches/minute
Jaw Clamps	3 inch width
Gauge Length	5 inches

4. Take one specimen and align the 5 inch marking between the jaw clamps. Ensure the fabric sample is centered in the clamps, with the long side of the fabric flush with the vertical edges of the clamps. See Image 2.
5. Tighten the top clamp and tare the load to zero. Tighten the bottom clamp without applying pressure. (Take note of the load at the start of the test- when both top and bottom jaw are clamped, for each additional samples repeat load at start as close as possible).
6. Elongate the specimen to a load of 7.5 lbs. and return to zero extension. Repeat a second cycle on the specimen and record load in pounds at 20%, 40%, 60% and 80% extension. Also, record total elongation under a load of 7.5 lbs. as a percent. Return to zero load and calculate immediate recovery. (Immediate recovery is calculated by the Instron® using the calculation provided in results section.)
7. Repeat steps 4-6 on each specimen. Final length results are obtained from the average of length readings. Final width results are obtained from the average of width readings.

Note: If the maximum load is achieved prior to 80% extension, record the extension results at that point, return to zero extension and record recovery %.

RESULTS

Load	Load value in pounds at 20%, 40%, 60%, and 80% elongation on the second cycle.
Elongation	Percent extension at the specified load on the second cycle. Example of Elongation Requirement Scenarios

Requirement	Specification	Passing Range
Spec'd <100%: ±10pts.	85%	75% - 95%
Spec'd ≥100%: ±10%	150%	135% - 165%

Recovery

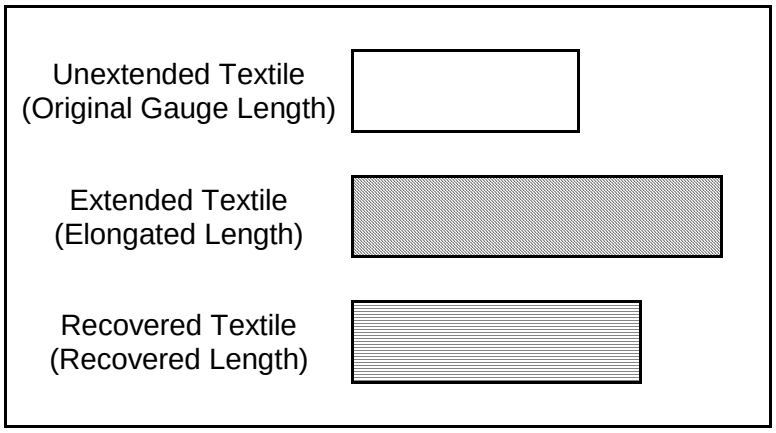
Percent recovery calculated on machine when ramp 4 load reaches 0.0001 lbf

$$\text{Recovery} = \frac{\text{Elongated Length - Recovered Length}}{\text{Elongated Length - Orig. Gauge Length}} \times 100$$

Example Calculation:

Original Gauge Length= 5”
Elongated Length= 6”
Recovered Length= 5.2”

$$\frac{6.0" - 5.2"}{6.0" - 5.0"} \times 100 = 80.0\% \text{ Recovery}$$



Instron® Calculation:
("Extension @ Maximum Load 3 Ramp"-"Tensile extension @ Preset Point (Load 0.0001 lbf) 4 AbsoluteRamp")* 100/"Extension @ Maximum Load 3 Ramp"

Hysteresis

Consistency of stretch and recovery power

Instron® Calculation:
"Energy @ Maximum Time 3"+"Energy @ Maximum Time 4"

REPORT	Report load, elongation and recovery properties by the outlined test methods, for both length and width samples. Report hysteresis when requested by L Brands.

Image 1: Specimen Marking

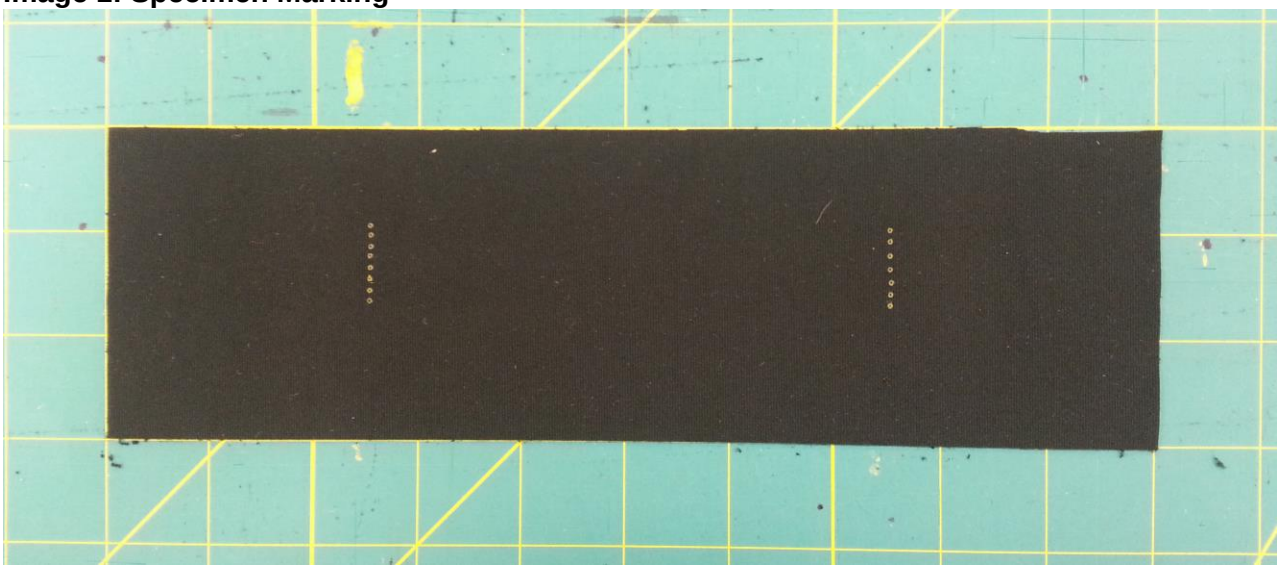


Image 2: Align Markings between Jaws

This information is given in good faith by Limited Brands who accept no responsibility for any accidents that may occur when carrying out the above test, or when handling or using any of the equipment mentioned. You are accordingly required to rely on your own technical advisors.