

**DETERMINATION OF TENSILE STRENGTH AND ELONGATION
OF FLEXIBLE TRIM MATERIALS**

Application

This procedure is used to determine the tensile strength and elongation of leather, plastic sheeting, and similar flexible trim materials.

Apparatus Required

Tensile Testing Machine

With constant rate of jaw separation (125 mm/minute) and recording device.

Jaws

Capable of holding specimen without slipping and ensure break occurs within gauge length.

Slide Gauge

Or pair of dividers.

Conditioning and Test Conditions

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 °C and 50 +/- 5 % relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

Procedure

1. Cut 10 specimens 15 +/- 0.1 mm in width and approximately 170 mm in length from different areas of the sample, 5 in the longitudinal and 5 in the transverse directions.
2. Mark off a gauge length of 100 mm equidistant from both ends of the specimens. Avoid damaging the specimen.
3. Determine the thickness of each specimen according to FLTM EU BN 050-07.

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2001 10 31	Revised	Editorial – no technical change A. Cockman
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4. Set the distance of the jaws 130 mm apart and set the rate of separation of the jaws at 125 mm/minute unless otherwise required by the relevant engineering specification.
5. Insert the specimen into the jaw grips with 20 mm of each end of the specimen under the grips. Pull the specimen.
6. Record the maximum load (kgf) necessary to break the specimen.
7. Record the elongation at break of the specimen using the slide gauge.

Evaluation

Tensile Strength of the specimen as follows:

$$\text{Tensile strength kgf/cm}^2 = \frac{F \times 100}{15 \times T}$$

Where: F = Load required to break specimen (in kgf)

T = Thickness of the specimen in millimeters determined according to FLTM EU BN 050-07.

Note: The thickness measurement shall be taken at different locations between the gauge length marks on the longitudinal median of the specimens. The average of the minimum three readings on each specimen is recommended for calculation.

Elongation at break of the specimen as follows:

$$\text{Elongation at break in \%} = \frac{L_1 - L_0}{L_0} \times 100$$

Where: L₀ = Original gauge length (mm)

L₁ = Average gauge length of 10 samples at break (mm)

Report the average values of tensile strength and elongation of 5 specimens in each direction.

Chemicals, materials, parts, and equipment referenced in this document must be used and handled properly. Each party is responsible for determining proper use and handling in its facilities.