

DETERMINATION OF THE EFFECT OF FADEOMETER AGING
ON TENSILE STRENGTH OF SEWING THREADS

Application

This method is used to determine the effect of ultra-violet radiation on the tensile strength of sewing threads after xenon arc fadeometer exposure.

Apparatus Required

Xenon-Arc Fadeometer - Refer to SAE J1885.

Tensile Testing Machine

Constant rate of extension type, Model "E" Tensometer or equivalent.

Source: Instron Corporation
100 Royall Street
Canton, MA 02021

Tensometer Ltd.
Croydon, Surrey, England

Clips - Rust resistant. Use as required to secure test specimens.

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

Method A - Thread Samples

1. Prepare a 70 x 120 mm frame with an opening 50 x 50 mm, made of a 2 - 3 mm thick sheet polyethylene or fiberboard.
2. Wrap the thread around the narrow dimension of the frame until the opening is completely covered with thread one layer thick.
3. Mount the polyethylene or fiberboard frame in a suitable sample holder on the rotating rack of the fadeometer in a vertical position.

Date	Action	Revisions
2001 09 12	Revised	Editorial – no technical change A. Cockman
1996 10 17		

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4. Expose for the number of kJ/m² designated by the engineering material specification and under the operating condition described in SAE J1885.
5. Determine the tensile strength of ten threads in the original condition and ten threads in the aged condition as described in ASTM D 204, at a constant speed of 300 mm/minute.
6. Compute the average tensile strength and calculate the percentage loss as follows:

$$\% \text{ loss in tensile strength} = \frac{\text{original tensile} - \text{aged tensile}}{\text{original tensile}} \times 100$$

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.