

**DETERMINATION OF THE CHANGE IN TENSILE STRENGTH OF SEWING THREADS
AND SEAT BELTS AFTER AGEING****Application**

This test method is used to determine the effect of ultra-violet radiation on the tensile strength of sewing threads and seat belt webbings after Fadeometer exposure.

Apparatus Required**Fadeometer**

According to FLTM EU-BN 001-01.

Tensile Testing Machine

Constant rate of extension type, e.g., Model 'D' Tensometer.

Source: Tensometer Ltd.
Croydon, Surrey, England

Split Drum Grips

For seat belt testing (e.g. as denoted in SAE Standard J4C, para 7.2).

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 and expose the samples in the Fadeometer for 200 S.F.H. (if not otherwise specified) under the operating conditions described in FLTM EU-BN 001-01, Supplement 1.
2. Prior to performing the tensile tests (original and aged) ensure that the specimens have been conditioned at 20 +/- 2 °C and a relative humidity of 65 +/- 3 % for 24 hours.

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2001 09 10	Revised	Editorial – no technical change A. Cockman
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Page 1 of 3

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3. Determine the tensile strength of ten threads in the original and ten threads in the aged condition as described in ASTM D 204.

Evaluation

Determine the average tensile strength for the original and aged specimens and calculate the percentage loss in tensile strength as follows:

$$\% \text{ loss in tensile strength} = \frac{\text{Original Tensile} - \text{Aged Tensile}}{\text{Original Tensile}} \times 100$$

Method B - Seat Belts

1. Cut 2 specimens, each 1000 mm long from 3 seat belt assemblies.
2. Take one specimen from each seat belt assembly and fold the webbing so that a 300 mm strip is exposed in the centre of the specimen (see sketch).
3. Clamp each of the folded ends of the webbing to the revolving frame of the Fadeometer so that the webbing is held in a vertical position.
4. Expose the samples in the Fadeometer for 200 S.F.H. (if not otherwise specified) under the operating conditions described in FLT M EU-BN 001-01.
5. Prior to performing the tensile tests (original and aged) ensure that the specimens have been conditioned at 20 +/- 2 °C and a relative humidity of 65 +/- 3 % for 24 hours.
6. Determine the tensile strength of the 3 specimens in the original condition and the 3 specimens in the aged condition, as required by the relevant material specification.

Evaluation

Calculate the percentage Retained Tensile Strength for the seat belt assemblies, using the medium values obtained for the original and aged specimens, as follows:

$$\% \text{ Retained Tensile Strength} = \frac{\text{Aged Tensile Strength}}{\text{Original Tensile Strength}} \times 100$$

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.