

6.5 Clamp the test piece in the equipment. The jaws should be on the minimum separation, so that the length of the sample is at right angles to the edge of the jaws. When clamped, the test piece should be neither stretched nor slack. Furthermore, the seams must not be clamped.

6.6 Once the test piece is clamped, calibrate the equipment so that the maximum distance between the jaws during each cycle corresponds to the maximum elongation value.

6.7 Switch on the machine at a test speed of (60 ± 5) cycles per minute until 2 000 cycles have been completed. Then, examine the test piece again and record the amount of broken elastic threads, as well as any signs of visible damage, such as wrinkling.

6.8 If more than 10 % of the test piece's elastic threads are broken or if it has wrinkled severely, the test is complete.

6.9 If the test piece does not appear to be damaged, carry out another 2 000 cycles and examine it once more. Continue this process until 10 000 cycles have been carried out or until any damage appears.

6.10 Repeat the procedure for the other two samples.

6.11 When test pieces are subjected to ageing, store the cut test pieces at 70 °C for 7 d. Take out the samples after 7 d, and leave them to condition in a controlled atmosphere at (23 ± 2) °C and (50 ± 5) % relative humidity (RH), for at least 48 h. Prepare the test pieces and test them according to the procedure described in 6.1 to 6.10.

1 Scope

This International Standard specifies a test method for the determination of the resistance of elastic materials for footwear, to repeated extension produced during normal walking. The test can be carried out before and after accelerated ageing. This method is applicable to any elastic material used for footwear.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 10765, *Footwear — Test method for the characterization of elastic materials — Tensile performance*

ISO 18454, *Footwear — Standard atmospheres for conditioning and testing of footwear and components for footwear*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

elastic

tape, cord or fabric containing rubber or a similar substance allowing it to stretch and return to its original shape

NOTE Generally elastic materials are used in upper construction in the quarters or in the straps to hold the shoe on the foot.

4 Apparatus and materials

4.1 Sewing machine, with a round point needle metric size 90s or 70s, a nylon or polyester thread (approximately tex 17/3) and operating at 6 stitches/cm.

4.2 Repeated extension machine, with a minimum separation of (60 ± 10) mm, a maximum separation that is fully adjustable up to a distance equal to the minimum separation plus 150 mm, a method of applying a simple harmonic reciprocating action to increase the distance between the clamps from the minimum to the maximum separation and back again at a rate of (60 ± 5) cycles per minute and a means of recording the number of cycles.

4.3 Chamber, at (70 ± 2) °C for the accelerated ageing process.

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4.3 **Chamber**, at (70 ± 2) °C for the accelerated ageing process.

Key

- 1 coated fabric
- 2 stitching
- 3 line drawn on elastic
- 4 elastic

Figure 1 — Dimensions of a standard test piece in millimetres

6 Procedure

6.1 Damage of the elastic is evaluated after being submitted to repeated extensions of 150 % of its initial length or until the limit of useful extension (see ISO 10765).

6.2 Once the test pieces are prepared, measure the distance between the seams at both ends as well as the test piece width, to the nearest 0,5 mm. There should not be more than a 2 mm difference in the measurements. Calculate the arithmetic mean of the three values to the nearest 0,5 mm.

6.3 Before starting the test, examine the test piece under bright lighting conditions and record the number of elastic threads of the sample.

6.4 The limit of useful extension of the elastic material is needed so as to know the maximum stretch that can be applied. It is determined in accordance with ISO 10765.

If the useful extension is ≥ 150 %, the maximum stretch to apply is 150 %. If the useful extension is < 150 %, the maximum stretch to apply is equal to the useful extension value.

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EN ISO 10768:2010 (E)

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7 Expression of results

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