

COMPRESSION AND RECOVERY OF TEXTILE MATERIALS**Application**

This method is used to measure the compression and recovery of fibre padding and similar materials in the normal and aged condition.

Apparatus Required**Steel Plate**

100 x 100 x 3 mm weighing approximately 250 g.

Compression Tester

A compression machine capable of compressing the specimen at a rate of 50 mm/minute without impact, is required. The instrument must indicate the load applied and may be motor or hand driven.

Mechanical Convection Oven

Capable of maintaining a constant temperature of 80 +/- 2 °C.

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 - Compression and Recovery - Normal**

1. Cut 100 x 100 mm specimens at random from across the width of the roll and build up to a pile not less than 25 mm in thickness.
2. Place the 100 x 100 mm steel plate over the pile and place in the compression tester.

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2001 08 22	Revised	Editorial – no technical change A. Cockman
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3. Apply a 2.2 kg load for one minute. Remove the load and measure the thickness of the sample at the centre of the four sides of the steel plate. Compute the average of these values and record as thickness T_1 .
4. Apply a load of 34 kg at the rate of 50 mm/minute, lock the scale and again measure the average height of the sample and record as T_2 .
5. Hold at the 34 kg load for 5 minutes, remove load and allow to recover for 5 minutes with the steel plate still on the sample. Measure and record the average thickness T_3 .

Method B - Compression and Recovery After Ageing

1. Cut 100 x 100 mm specimens at random from across the width of the roll.
2. Age test specimens for 24 h at 80 +/- 1 °C in the oven, and then allow to stand for 30 minutes at 20 +/- 2 °C and 65 +/- 3 % relative humidity.
3. Build up the specimens into a pile not less than 25 mm thick.
4. Continue the test as described in Method A, Steps 2 - 5.

Evaluation

Calculate the compression and recovery of the specimen for both Method A and B as follows:

$$\% \text{ Compression} = \frac{T_1 - T_2}{T_1} \times 100$$

$$\% \text{ Recovery} = \frac{T_3 - T_2}{T_1 - T_2} \times 100$$

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.