

Australian/New Zealand Standard®

Pliable building membranes and underlays— Methods of test

Method 3: Shrinkage

METHOD

1 SCOPE This test determines the extent to which pliable building membrane material shrinks in the machine direction following repeated wetting and drying.

2 APPARATUS The following equipment is required:

- (a) Two 150 mm bulldog clips.
- (b) Weight support with attachment.
- (c) Weight: 1.5 kg.
- (d) Length measuring equipment, with accuracy of ± 0.5 mm or better at a reading of 500 mm.
- (e) Film packaging tape, 25 mm wide, with waterproof backing and water-resistant pressure-sensitive adhesive.
- (f) Trough of minimum dimensions 750 mm long $\times$ 300 mm wide $\times$ 150 mm deep, with non-metallic inner face.

3 TEST SPECIMEN The test specimen shall comply with the following:

- (a) It shall be representative of the pliable building membrane.
- (b) It shall be at least 675 mm long in the machine direction, and of full roll width.
- (c) The machine direction shall be marked.

4 PROCEDURE The following steps shall be taken:

- (a) Cut four rectangular test pieces from the test specimen, each 675 mm long in the machine direction and 125 mm wide. The test pieces shall be uniformly sampled from the full width of the test specimen.
- (b) Condition a test piece for at least 6 h at $23 \pm 2^\circ\text{C}$, $50 \pm 5\%$ RH.
- (c) Form a continuous seal around the edge of the test piece using the tape, covering approximately 12 mm of each face.
- (d) Lay the test piece on a bench and draw two fine pencil (or similar) marks midway across the width on one face, approximately 500 mm apart along the length of the test piece. Take care to avoid any rupturing of the surface of the test piece.
- (e) Hang the test piece vertically by suspending it from a clip attached to a convenient support.
- (f) Suspend the 1.5 kg weight from the lower end of the test piece by using the second clip. Ensure that the test piece is hanging vertically.

- (g) Measure the distance between the marks on the test piece, to ± 0.5 mm.
- (h) Remove the test piece from the suspension rig and immerse it flat in the trough containing tap water at $23 \pm 3^\circ\text{C}$ for a period of 30 minutes.
- (i) Remove the test piece from the trough and refit it to the suspension rig as in Steps 4(e) and 4(f). Allow the test piece to dry in the air at $23 \pm 2^\circ\text{C}$, $50 \pm 5\%$ RH for a period of 18 h to 3 d.
- (j) Repeat Steps 4(h) and 4(i) another nine times, excepting that the final (tenth) drying shall be for a period of 3 to 5 d.
- (k) Remeasure the distance between the marks on the test piece to ± 0.5 mm.
- (l) Calculate the percentage shrinkage value of the test piece to the nearest 0.1% by expressing the difference between the original and final lengths as a percentage of the original length.
- (m) Repeat Steps 4(b) to 4(l) for each of the other three test pieces, so that two test pieces are marked on one face and two on the other face (see Step 4(d)).
- (n) Calculate the average percentage shrinkage value for the four test pieces to the nearest 0.1%, disregarding any results from a test piece showing accidental damage caused during testing; a valid test shall require the averaging of at least three test piece values.

5 REPORTING The average percentage shrinkage value to the nearest 0.1% shall be reported.

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