
International Standard



5077

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Textiles — Determination of dimensional change in washing and drying

Textiles — Détermination des variations dimensionnelles au lavage et au séchage domestiques

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 5077 was prepared by Technical Committee ISO/TC 38, *Textiles*.

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Textiles — Determination of dimensional change in washing and drying

1 Scope and field of application

This International Standard specifies a method for determination of the dimensional change of fabrics, garments or other textile articles when subjected to an appropriate combination of specified washing and drying procedures.

In the case of textile articles or deformable materials, it is necessary to exercise all possible caution in the interpretation of the results.

2 References

ISO 139, *Textiles — Standard atmospheres for conditioning and testing*.

ISO 3759, *Textiles — Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change*.

ISO 6330, *Textiles — Domestic washing and drying procedures*.

3 Principle

The specimen is conditioned in the specified standard atmosphere and measured before subjection to the appropriate washing and drying procedures. After drying, conditioning and remeasuring of the specimen, the changes in dimensions are calculated.

4 Apparatus and reagents

As specified in ISO 3759 and in ISO 6330.

5 Atmospheric conditions

The atmospheric conditions required for pre-conditioning and testing are specified in ISO 139.

6 Test specimens

6.1 The selection, dimensions, marking and measuring of test specimens are specified in ISO 3759.

6.2 The number of specimens to be tested is determined by the precision of the results required. In this test method, it is suggested that four specimens of each sample be tested and that these specimens be washed in two separate wash loads with two specimens per wash load (replicates per run). See the annex.

6.3 In certain circumstances, it may be desirable not to test four specimens, and fewer specimens may be used.

7 Procedure

7.1 Determine the original length and width dimensions, as appropriate, after the specimens have been pre-conditioned, conditioned and measured according to the procedure specified in ISO 3759.

7.2 Wash and dry the specimens according to one of the procedures specified in ISO 6330, as agreed between the interested parties.

7.3 After washing and drying, condition and measure the specimens and calculate the dimensional change of the specimens according to the procedure specified in ISO 3759.

8 Expression of results

8.1 Calculate the mean changes in dimensions in both the length and width directions in accordance with the arrangement in ISO 3759 as follows:

$$\begin{array}{l} \text{Percentage} \\ \text{change} \\ \text{in length} \end{array} = \frac{\text{Final length} - \text{Original length}}{\text{Original length}} \times 100$$

$$\begin{array}{l} \text{Percentage} \\ \text{change} \\ \text{in width} \end{array} = \frac{\text{Final width} - \text{Original width}}{\text{Original width}} \times 100$$

8.2 Express the average dimensional changes to the nearest 0,5 %.

8.3 State whether the dimension has decreased (shrinkage) by means of a minus sign (–) or increased (extension) by means of a plus sign (+).

9 Test report

The test report shall include the following particulars:

- a) a statement that the methods adopted for preparation, marking and measuring were in accordance with this International Standard, and details of any additional measurements made;
- b) information on the test method used, including details of the washing, water removal and drying procedure, pressing, or other finishing procedure employed, unless this information can be given by a reference to an International Standard;

- c) the number of specimens washed and dried;
- d) for fabric specimens, the average dimensional change in the length (warp or wale) and the average dimensional change in the width (weft or course);
- e) for garments, the description, make and size of the garment tested;
- f) for garments, an adequate description of each measuring position and the dimensional change at each position for each garment tested.

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Annex

Confidence limits of the mean

(Applicable to fabrics only)

The following table gives estimates of 95 % confidence limits of the mean which can be expected in the mean results of linear percentage dimensional change, when the number of runs and replicates per run vary.

Number of runs	Number of replicates per run					
	1	2	3	4	5	10
1	± 1,68	± 1,24	± 1,05	± 0,94	± 0,87	± 0,71
2	± 1,19	± 0,87	± 0,74	± 0,67	± 0,62	± 0,50
3	± 0,97	± 0,71	± 0,61	± 0,54	± 0,50	± 0,41
4	± 0,84	± 0,62	± 0,53	± 0,47	± 0,44	± 0,36
5	± 0,75	± 0,55	± 0,47	± 0,42	± 0,39	± 0,32
10	± 0,53	± 0,39	± 0,33	± 0,30	± 0,28	± 0,22

NOTES

1 This table has been worked out from an interlaboratory trial conducted on behalf of ISO/TC 38/SC 2/WG 3 in 1973-1974. The wash programmes used in this trial differed somewhat from the programmes in the test method specified in this International Standard. The confidence limits applicable to this test method may lie somewhat closer together than suggested by the above table, but this can only be determined by another interlaboratory trial.

2 When the dimensional change of a fabric is greater than approximately 5 % the confidence limits given in the above table may no longer be valid.

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