BHUTAN STANDARD

Silk Fabrics – Dimensional Changes on washing – Method for determination (First Revision)



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Price Group A

NATIONAL FOREWORD

This Bhutan Standard which is identical with IS 3561 Silk fabrics – Dimensional Changes on washing – Method for determination (First Revision) issued by the Indian Standards Bureau (IS) was adopted by Bhutan Standards Bureau by Textile Technical committee (TC-06) and approved by the Bhutan Standards Bureau Board (BSB Board) on June, 2020.

The text of the IS Standard has been approved as suitable for publication as Bhutan Standard without deviation. Certain conventions are however, not identical to those used in Bhutan Standard.

Attention is particularly drawn to the following:

a) Where the words "IS Standard" appear referring to this standard, they should be read as "Bhutan Standard".

b) Wherever page numbers are quoted, they are "IS (IS Standard)" page numbers.

IS 3561 : 1989 (Reaffirmed 2003) (Reaffirmed 2013)

Indian Standard

(Reaffirmed 2019)

SILK FABRICS – DIMENSIONAL CHANGES ON WASHING – METHOD FOR DETERMINATION

(First Revision)

भारतीय मानक

रेशम के कपड़ों के धोने पर परिमाणात्मक परिवर्तन ज्ञात करने की पद्धति

(पहला पुनरीक्षण)

UDC 677[.]37[.]074 : 677[.]017[.]635[.]2

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BUREAU OF INDIAN STANDARDS MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG NEW DELHI 110002

December 1989

Price Group 1

Chemical Methods of Test Sectional Committee, TDC 5

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards on 31 July 1989, after the draft finalized by the Chemical Methods of Test Sectional Committee had been approved by the Textile Division Council.

This standard was first published in 1966 and has been revised to make it up to date on the basis of experience gained during its use. In this revision the preparation and conditioning of test specimens, sampling and procedure have been modified to align it with other similar latest Indian Standards.

Merely on soaking in water, fabrics woven from silk are liable to change in dimensions; when washed with soap, their dimensional instability is liable to be higher. As fabrics made out of silk are washed with mild soap, their dimensional stability is of obvious interest to the consumer.

In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'.

Indian Standard

SILK FABRICS – DIMENSIONAL CHANGES ON WASHING – METHOD FOR DETERMINATION

(First Revision)

1 SCOPE

1.1 This standard prescribes a method for determination of dimensional changes on washing of natural silk fabrics.

1.2 The method is intended only for the assessment of dimensional changes undergone by fabrics subjected to a single washing treatment. When it is desired to determine the amount of progressive dimensional changes, the test specimens should be washed repeatedly and the amount of dimensional changes of the washed specimens and the number of washing cycles to which the specimen has been subjected, be indicated clearly in the report.

2 REFERENCES

2.1 The following Indian Standards are necessary adjuncts to this standard:

IS No. Title

- IS 1070: 1977 Specification for water for general laboratory use (second revision).
- IS 3361:1979 Method for determination of colour fastness of textile materials to washing: Test 2 (*first revision*).
- IS 6359:1971 Method for conditioning of textiles.
- IS 10099: 1982 Methods for preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change.

3 PRINCIPLE

3.1 The specimen, after conditioning, is measured, washed, dried under prescribed conditions, reconditioned and remeasured. The dimensional changes obtained are calculated from the means of the original and final dimensions in the lengthways and/or widthways direction.

4 TERMINOLOGY

4.0 For the purpose of this standard, the following definition shall apply.

4.1 Dimensional Change, Percent

The decrease or increase in dimensions (that is, in length or width or both) after subjecting the fabric to the prescribed test, expressed as a percentage of the corresponding dimensions before such test.

5 SAMPLING

5.1 Sample from the lot shall be drawn so as to be representative of the lot. Sample drawn in accordance with the relevant material specification or as agreed to between the buyer and the seller shall be held to be representative of the lot.

6 APPARATUS

6.1 Watertight Tray or Container

Approximately 100 ml deep and of sufficient area to contain the specimen horizontally without folding. It shall be provided with a glass plate for covering and with suitable draining arrangement.

6.2 Steel Rule, graduated in mm.

6.3 Means of Marking Reference Points, as specified in 5.3 of IS 10099 : 1982.

6.4 Two Pieces of Plate Glass, each measuring at least 600 mm × 600 mm.

7 REAGENTS

7.1 Quality of Reagents

Unless otherwise specified pure chemicals and distilled water (see IS 1070: 1977) shall be used wherever the use of water as a reagent is intended.

NOTE — 'Pure Chemicals' shall mean chemicals that do not contain impurities which affect the test results.

7.1 Soap Solution

Contianing 5 g of soap per litre of the composition as specified in clause 5.1 of IS 3361 : 1979.

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IS 3561 : 1989

8 ATMOSPHERE FOR CONDITIONING AND TESTING

8.1 Prior to test, the test specimens shall be conditioned to moisture equilibrium from the dry side in a standard atmosphere at 65 ± 2 percent relative humidity and $27^{\circ} \pm 2^{\circ}$ C temperature (see IS 6359 : 1971).

8.2 When the test specimens have been left in such on atmosphere for 24 hours in such a way as to expose, as far as possible, all portions of the specimens to the atmosphere, they shall be deemed to have reached moisture equilibrium. However, in case of fabrics which weigh more than 270 g/m², this period shall be 48 hours.

NOTE — It is preferable to store the newly finished fabrics for about a week before conditioning.

8.3 The testing shall be carried out in the standard atmosphere (see 8.2).

9 TEST SPECIMENS

9.1 Draw at least one test specimen from each piece of wide fabrics measuring not less than $500 \text{ mm} \times 500 \text{ mm}$ with edges parallel to the length and width of fabric and at least three specimens from each piece of narrow fabrics measuring 500 mm in length and of full width. Do not take any specimen within 1 m of either end of the piece. In case of wide fabrics, do not take specimens with selvedges. For knitted fabrics, make up the specimens in double thickness, sewing the free edges together with dimensionally stable thread. When fabrics with fancy weave structures are being tested, ensure as far as possible that exact number of repeats are taken in each test specimen.

NOTE — The specimen should be cut and not torn from the fabric.

10 PROCEDURE

10.1 Marking and Measuring of Test Specimens Before Washing

Mark and measure the distance between reference points in the test specimens previously conditioned in the standard atmosphere (*see* 8.2) as prescribed in 6.2 to 6.5 of IS 10099 : 1982.

10.2 Washing of Test Specimens

10.2.1 Lay one test specimen flat after removing all creases and wrinkles by hand for one hour in the watertight tray containing 5 g/l of soap solution at 50° C. Ensure that the depth of liquid above the specimen is at least 25 mm. If necessary, keep the specimen submerged, for example, by use of small weight-pieces, ensuring that these are as small as possible.

10.2.2 After 1 hour, pour off the liquid and wash

the specimen first with water at 50° C for 20 minutes and then with cold water for 5 minutes while kept flat. Remove the specimen without distortion from the tray and place it flat on a towel. Ensure that the specimen is not stretched during handling. The most convenient method is to fold the corners to the centre so that the whole specimen is supported when lifted on to the towel. Remove excess moisture by lightly pressing another towel on top of the specimen.

10.2.3 Lay the specimen on a smooth flat surface and allow it to dry at room temperature. Condition the specimen in the standard atmosphere (see 8.2) to moisture equilibrium from the dry side and remeasure the distances between corresponding reference points to the nearest mm as prescribed in 10.1.

10.3 Repeat the procedure from **10.1** to **10.2.3** with the remaining test specimens.

11 CALCULATION AND EXPRESSION OF RESULTS

11.1 Calculate the mean of the original dimensions and the mean of the final dimensions for each test specimen in each direction separately to the nearest millimetre. Calculate separately the percentage dimensional change for each specimen in each direction (lengthways and widthways) by the formula:

Dimensional change, percent = $\frac{100(b-a)}{b-a}$

where

- a = mean original dimension before treatment for each test specimen,
- b = mean final dimension after treatment foreach test specimen.

11.2 Calculate the mean of the dimensional changes of all the specimens, separately in each direction.

11.3 Express the mean dimensional change percent in each direction to the nearest 0⁻¹ percent.

12 REPORT

12.1 The report shall include the following information:

- a) Whether the specimens were from wide or narrow fabrics and the number of specimens tested from each piece in the Test sample;
- b) The mean dimensional change, percent, in the lengthways and widthways directions for wide fabrics, and in the lengthways directions for narrow fabrics; and
- c) Indicate a decrease in dimension by a minus sign and an increase by a plus sign.

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