भारतीय मानक

Indian Standard

IS 3561 : 2024

रेशम के कपड़े — धोने पर परिमाणात्मक परिवर्तन — ज्ञात करने पद्धति

(दूसरा पुनरीक्षण)

Silk Fabrics — Dimensional Changes on Washing — Method for Determination

(Second Revision)

ICS 59.080.01

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January 2024 **Price Group 4**

Silk and Silk Products Sectional Committee, TXD 28

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Silk and Silk Products Sectional Committee had been approved by the Textile Division Council.

This standard was first published in 1966 and subsequently revised in 1989. The second revision has been made in the light of experience gained since its last revision and to incorporate the following major changes:

a) Temperature of soap solution during the washing of test specimen has been modified; and

b) Reference to the Indian standards have been updated.

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.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

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 : 2022 'Rules for rounding off numerical values (*second revision*)*'.*

Indian Standard

SILK FABRICS — DIMENSIONAL CHANGES ON WASHING — METHOD FOR DETERMINATION

(Second 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 change 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

The standards given below contain provisions which, through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards:

IS No.	*Title*
IS 1070 : 2023	Reagent grade water — Specification (*fourth revision*)
IS 6359 : 2023	Method for conditioning of textiles (*first revision*)
IS 10099 : 2020/ ISO 3759 : 2011	Textiles — Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change (*first revision*)
IS/ISO 105-C10 : 2006	Textiles — Tests for colour fastness: Part C10 Colour fastness to washing with soap or soap and soda

3 PRINCIPLE

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 width ways direction.

4 TERMINOLOGY

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

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 **6.4** of IS 10099.

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) 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.

7.2 Soap Solution

Containing 5 g of soap per liter of the composition as specified in **5.3** of IS/ISO 105-C10.

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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 percent ± 2 percent relative humidity and 27 °C ± 2 °C temperature (*see* IS 6359).

8.2 When the test specimens have been left in such on atmosphere for 24 h 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/m^2, this period shall be 48 h.

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* **8.1**).

9 TEST SPECIMENS

Draw at least one test specimen from each piece of wide fabrics measuring not less than 500 mm × 500 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* **8.1**) as prescribed in **6.4** and **6.5** of IS 10099.

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 40 °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 30 min, pour off the liquid and wash the specimen first with water at 40 °C for 20 min 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 center 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* **8.1**) 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 millimeter. Calculate separately the percentage dimensional change for each specimen in each direction (lengthways and width ways) by the formula:

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

where

a = mean original dimension before treatment for each test specimen; and

b = mean final dimension after treatment for each 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

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 width ways 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.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Silk and Silk Products Sectional Committee, TXD 28

Organization	*Representative*
Central Silk Board, Bengaluru	DR DR S. PERIYASAMY **(*Chairperson*)**
Anwar Silk Industries, Sidlaghatta, Karnataka	SHRI MOHAMMED HASEEB
Association of Corporations and Apex Societies of Handlooms, New Delhi	SHRI PALLAB TALUKDAR
Central Silk Technological Research Institute, Bengaluru	DR S. NIVEDITA DR PRAKASH N. BHAT (*Alternate*)
Chamundi Textiles Silk Mills Limited, Bengaluru	SHRI A. L. MUTHIAH
Directorate of Handicraft and Handloom, Kashmir	SHRI IMTIYAZ AHMAD DAR ZAHOOR AHMAD KHAN (*Alternate*)
Directorate of Handlooms and Textiles, Government of Tamilnadu, Chennai	SHRI THIRU C. MUNIANATHAN DR K. KARNAN (*Alternate*)
Directorate of Handlooms and Textiles, Guwahati	SHRI ATAUR RAHMAN SHRI NAREN MALAKAR (*Alternate*)
Himatsingka Seide Limited, New Delhi	SHRI MOHAN RAO SHRI S. A. VISHVANATH (*Alternate*)
Indian Silk Export Promotion Council, New Delhi	SHRI SANJEEV KUMAR SHARMA
Jaipuria Silk Mills, Bangalore	SHRI VIKRAM JAIPURIA
Karnataka Handloom Development Corporation Limited, Dharwad	SHRI P. CHANDRASHEKHAR SHRI P. MANJUNATH (*Alternate*)
Karnataka Silk Industries Corporation, Bengaluru	SHRI SIDDALINGA PRASAD S. G. SHRI D. S. SANGAM (*Alternate*)
Karnataka State Sericulture Development Institute, Thalaghattapura	SHRI A. JAMBUNATH
Khadi and Village Industries Commission, Mumbai	SHRI D. DHANPAL SHRI J. K. GUPTA (*Alternate*)
National Handloom Development Corporation Limited, Greater Noida	SHRI SAKTHIVEL PERUMALSAMY SHRI JITENDRA TOLAMBIYA (*Alternate*)
Office of Director of Handlooms and Textiles, New Delhi	JOINT DIRECTOR (TEXTILES) DY DIRECTOR (HANDLOOMS) (*Alternate*)
Office of the Development Commissioner for Handlooms, New Delhi	DR AMIN HIRENBHAI NAVINBHAI
Office of the Textile Commissioner, Mumbai	SHRI PRANAV PARASHAR N. K. GUPTA (*Alternate*)
Savanadurgha Narashimma Swamy Silk Reeling Factory, Ramanagara, Karnataka	SHRI NAGANNA
Shriram Institute for Industrial Research, Delhi	SHRI VINAY KUMAR SAMANIA SHRI BHUVNESHWAR RAI (*Alternate*)

Organization	*Representative*
Silk Mark Organisation of India, Bengaluru	SHRI K. S. GOPAL SHRI A. SUBBARAJ (*Alternate*)
Tamil Nadu Co-operative Silk Producers Federation Limited (TANSILK), Kancheepuram	SHRI P. MURUGAN P. ARULMOZHI (*Alternate*)
Textiles Committee, Mumbai	DR. P RAVICHANDRAN SHRI KARTIKAY DHANDA (*Alternate*)
The Bombay Textile Research Association, Mumbai	SHITAL PALASKAR SHRI AMOL THITE (*Alternate)*
The Tamil Nadu Handloom Weavers Co-operative Society Limited, Chennai	SHRI G. GUNASEKARAN
Vinegar Exports Private Limited, Bengaluru	BIMAL MAWANDIA
BIS Directorate General	SHRI J. K. GUPTA, SCIENTIST 'E'/DIRECTOR AND HEAD (TEXTILES) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)]

Member Secretary
SHRI BANOTHU RANGA
SCIENTIST 'B'/ASSISTANT DIRECTOR
(TEXTILES), BIS

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