

वस्त्रादि — सूती तौलियों के कपडे और
तौलिए — विशिष्टि

(दूसरा पुनरीक्षण)

Textiles — Cotton Towelling and
Towels — Specification

(Second Revision)

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FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Man-made Fibres, Cotton and their Products Sectional Committee had been approved by the Textiles Division Council.

This standard was first published in the year 1973. It was first revised in the year 1989 to specify the requirements of towels in a single specification amalgamating IS 7057 : 1973 'Specification for cotton turkish towels'. This standard is being revised again to incorporate the following:

- a) Requirements of an additional variety of cotton towel of different GSM which is extensively used in Indian Railways have been incorporated;
- b) The requirements for identification of material, whiteness index and colour fastness to hypochlorite have been incorporated;
- c) The requirement of tolerance for count of yarn has been specified;
- d) Amendment has been incorporated; and
- e) References to Indian Standards have been updated.

The composition of the Committee responsible for the formulation of this standard is given in [Annex C](#).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

**TEXTILES — COTTON TOWELLING AND TOWELS —
SPECIFICATION**

(*Second Revision*)

1 SCOPE

1.1 This standard prescribes constructional and performance requirements of cotton terry (turkish) and huck-a-back towelling and towels; bleached, dyed, printed or striped.

1.2 The standard does not specify design, general appearance, feel, finish or shade, etc (*see* also [4.1](#)).

2 REFERENCES

The standards listed in [Annex A](#) contain provisions which, through reference in this text, constitute provisions 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 edition of these standards.

3 REQUIREMENTS

3.1 Fabric Constructional Requirements

Terry towelling shall meet the construction particulars given in [Table 1](#), huck-a-back fabric shall conform to the construction particulars given in [Table 2](#). The cotton yarn used shall be evenly spun (*see* IS 171).

3.2 Fabric Performance Requirements

3.2.1 The fabric shall conform to the performance requirements given in [Table 3](#).

Note — Dyed yarn used in stripes, dyed fabric or printed fabric shall conform to the colour fastness ratings given in [Table 3](#).

3.2.2 In case of undyed or white towels, the whiteness index shall not be less than 140 when tested as per the method prescribed in Annex J of IS 17263.

3.3 Freedom from Defects

The fabric when visually examined shall be free from spinning, weaving and processing defects (*see* IS 14466). The bleached fabric shall have a full bleach finish and shall be free from blueing or optical whitening agents, if required by the buyer. In case of dyed fabric, the fabric shall be thoroughly

scoured prior to dyeing so that the maximum absorbency is obtained. The dyeing shall be uniform without stains, streaks, patches, etc and shall match the required shade.

3.4 Sizes

Dimensions of towels shall be as given in [Table 4](#).

3.5 Heading

The maximum depth of plain heading at each end of the towel shall be as specified in [Table 4](#).

3.6 Sewing Thread

If agreed to between the buyer and the seller, either one of the following 2 sewing threads may be used:

- a) Cotton sewing thread of 60 s/6 cotton count (N_e) ($9.8 \text{ tex} \times 6$) conforming to IS 1720 shall be used; and
- b) Polyester sewing thread of 3 ply 24 tex, *Min* shall be used. The count of the yarn for polyester sewing thread shall be tested as per IS 1315.

Note — In case of dyed towels the thread shall be of similar shade.

3.7 Transverse Ends or End Hems

Each transverse end of towel shall have a 7.5 mm hem, *Min* with a full turn-in at each end.

3.8 Side Edges

The side edges shall be either selvedge which shall be firm and straight or shall have a 7.5 mm, *Min* hem with a full turn-in.

3.9 Stitching

The stitching shall be of even tension and the loose ends shall be finished securely and neatly. The number of stitches shall not be less than 4 per centimeter.

4 SEALED SAMPLE

4.1 If, in order to illustrate indeterminable characteristics such as general appearance, lustre,

feel and shade, a sample has been agreed upon and sealed, the supply shall be in conformity with the sample in such respects.

4.1.1 The custody of the sealed sample shall be a matter of prior agreement between the buyer and the seller.

Table 1 Construction Particulars of Terry Towelling

(Clause 3.1)

| SI No. | Varity No. | Count of Yarn, Ne | | | Threads per dm, <i>Min</i> | | | Mass, <i>Min</i> g/m ² | Terry Ratio, <i>Min</i> |
|--------|-----------------------|-------------------|--------|------|-------------------------------|------|------|---|-------------------------------|
| | | Warp Ground | Pile | Weft | Warp Ground | Pile | Weft | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| i) | 1 | 16 s/2 | 16 s | 14 s | 100 | 100 | 200 | 390 | 6 : 1 |
| ii) | 2 | 20/2 s | 20/2 s | 12 s | 145 | 145 | 170 | 550 | 4.5 : 1 |
| iii) | Tolerance, percent | ± 5 | ± 5 | ± 5 | — | | | — | — |
| iv) | Method of test | IS 1315 | | | IS 1963 | | | IS 1964 | Annex B |

Table 2 Construction Particulars of Huck-a-Back Towelling

(Clause 3.1)

| SI No. | | Count of Yarn, Ne (see Note) | | Threads per dm <i>Min</i> | | Mass, <i>Min</i> g/m ² |
|--------|-----------------------|---------------------------------|--------------|------------------------------|-------|---|
| | | Warp | Weft | Ends | Picks | |
| (1) | | (2) | (3) | (4) | (5) | (6) |
| i) | | 14 s (42 tex) | 6 s (98 tex) | 360 | 135 | 290 |
| ii) | Tolerance, percent | (see Note) ± 5 | | — | — | — |
| iii) | Method of test | IS 1315 | | IS 1963 | | IS 1964 |

NOTE — Two warp threads work as one in the loom.

Table 3 Performance Requirement for Fabric

(Clause 3.2.1)

| SI No. | Characteristic | Requirements | | | Method of Test |
|--------|---|----------------------|----------------------|-------------------|------------------|
| | | Terry (Variety 1) | Terry (Variety 2) | Huck-a-Back | |
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Identification of material (see Note 1) | 100 % cotton | 100 % cotton | 100 % cotton | IS 667 |
| ii) | Breaking load on 5.0 cm × 20 cm strips (ravelled strip method), <i>Min</i> | | | | IS 1969 (Part 1) |
| | a) Warpway | 310 N (32 kgf) | 345 N (35 Kgf) | 590 N (60 kgf) | |
| | b) Weftway | 340 N (35 kgf) | 295 N (30 Kgf) | 330 N (34 kgf) | |

Table 3 (Concluded)

| Sl No. | Characteristics | Requirements | | | Method of Test |
|--------|---|----------------------|----------------------|-------------|--------------------------|
| | | Terry (Variety 1) | Terry (Variety 2) | Huck-a-Back | |
| (1) | (2) | (3) | (4) | (5) | (6) |
| iii) | Scouring loss, percent, <i>Max</i> | 2.0 | 2.0 | 2.0 | IS 1383 (Mild method) |
| iv) | Dimensional change, percent, <i>Max</i> | 3.0 | 3.0 | 3.0 | IS 2977 |
| v) | pH value | 6.0 to 8.5 | 6.0 to 8.5 | 6.0 to 8.5 | IS 1390 |
| vi) | Wettability, <i>Max</i> | 5 s | 5 s | 5 s | IS 2349 |
| vii) | Minimum colour fastness rating to: | | — | | |
| | a) Light (<i>see</i> Note 2) | 5 | 5 | 5 | IS/ISO 105-B02 |
| | b) Washing: Test 4 | | | | |
| | Change in colour | 4 | 4 | 4 | IS/ISO 105-C10 |
| | Staining of adjacent fabric | 4 | 4 | 4 | |
| | c) Hypochlorite | | | | |
| | Change in colour | 4 | 4 | 4 | IS/ISO 105-N01 |

NOTES

1 Impurities of less than 0.2 percent shall be permitted.

2 In case of 'sulphur dyes', the minimum colour fastness rating to light shall be 4.

Table 4 Dimensions of Towels

(Clauses 3.4 and 3.5)

| Sl No. | Minimum Dimensions | | Maximum Heading |
|--------|--------------------|--------------|-----------------|
| | Width cm | Length cm | Depth cm |
| (1) | (2) | (3) | (4) |
| i) | 40 | 60 | 6.5 |
| ii) | 50 | 100 | 6.5 |
| iii) | 61 | 122 | 6.5 |
| iv) | 66 | 112 | 6.5 |
| v) | 75 | 150 | 6.5 |
| vi) | 80 | 155 | 6.5 |

5 MARKING

5.1 The towelling or towels shall be marked with the following particulars:

- Length and width;
- Manufacturer's name, initials or trademark, if any;
- Month and year of manufacture; and
- Any other information as required by the buyer or the law in force.

5.1.1 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the

Bureau of Indian Standards Act, 2016 and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

6 PACKING

Unless otherwise agreed upon by the buyer and the seller, the towelling or towels shall be packed in bales or cases in conformity with the procedure laid down in IS 1347 or in IS 293 as required.

7 SAMPLING**7.1 Lot**

The quantity of the towels delivered to the buyer against one dispatch note shall constitute a lot.

7.2 The conformity of the lot to the various requirements specified in the standard shall be determined on the basis of tests carried out on the sample selected from the lot.

accordance with [Table 5](#).

For selection of samples at random from the lot, procedure given in IS 4905 may be followed.

7.3 Unless otherwise agreed, the number of pieces selected at random for inspection shall be in

Table 5 Sample Size and Permissible Number of Non-Conforming Product(s)

(Clauses [7.3](#) and [7.4](#))

| SI No. | Lot Size Sample | Sample Size | Permissible Number of Non-Conforming Towels | Sub-Sample Size |
|--------|-------------------|-------------|---|-----------------|
| (1) | (2) | (3) | (4) | (5) |
| i) | Up to 90 | 5 | 0 | 3 |
| ii) | 91 to 150 | 8 | 0 | 3 |
| iii) | 151 to 500 | 13 | 1 | 5 |
| iv) | 501 to 1 200 | 20 | 1 | 5 |
| v) | 1 201 to 10 000 | 32 | 2 | 8 |
| vi) | 10 001 to 35 000 | 50 | 3 | 8 |
| vii) | 35 001 to 500 000 | 80 | 5 | 13 |
| viii) | 500 001 and above | 125 | 7 | 13 |

7.4 Number of Samples and Criteria for Conformity

It shall be as follows:

| Sl No. | Characteristics | Number of Samples | Criteria for Conformity |
|--------|--|---|---|
| (1) | (2) | (3) | (4) |
| i) | Ends, picks, dimensions of towel and freedom from defects, count | According to col (3) of Table 5 | Number of non-conforming pieces shall not exceed the corresponding number given in col (4) of Table 5 |
| ii) | Mass, Dimensional change, pH value, wettability, colour fastness, identification of material, scouring loss, breaking load, heading, sewing threads, end hems, side edges, stitching terry ratio | According to col (5) of Table 5 | All the test pieces shall meet the requirement |

ANNEX A

(Clause 2)

LIST OF REFERRED STANDARDS

| <i>IS No.</i> | <i>Title</i> | <i>IS No.</i> | <i>Title</i> |
|-----------------------|---|--|---|
| IS/ISO 105-B02 : 2014 | Textiles — Tests for colour fastness: Part B02 Colour fastness to artificial light: Xenon arc fading lamp test | IS 1720 : 1978 | Specification for cotton sewing threads (<i>second revision</i>) |
| IS/ISO 105-C10 : 2006 | Textiles — Tests for colour fastness: Part C10 Colour fastness to washing with soap or soap and soda | IS 1963 : 1981 | Methods for determination of threads per unit length in woven fabrics (<i>second revision</i>) |
| IS/ISO 105-N01 : 1993 | Textiles — Tests for colour fastness: Part N01 Colour fastness to bleaching: Hypochlorite | IS 1964 : 2001 | Textiles — Methods for determination of mass per unit length and mass per unit area of fabrics (<i>second revision</i>) |
| IS 171 : 1993 | Textiles — Ring spun grey cotton yarn for weaving — Specification (<i>fourth revision</i>) | IS 1969 (Part 1) : 2018/ ISO 13934-1 : 2013 | Textiles — Tensile properties of fabrics: Part 1 Determination of maximum force and elongation at maximum force using the strip method (<i>fourth revision</i>) |
| IS 293 : 1980 | Code for seaworthy packaging of cotton yarn and cloth (<i>third revision</i>) | IS 2349 : 2022 | Method for determination of wettability of cotton fabrics (<i>first revision</i>) |
| IS 667 : 1981 | Methods for identification of textile fibres (<i>first revision</i>) | IS 2977 : 1989 | Fabrics (other than wool) — Method for determination of dimensional changes on soaking in water (<i>first revision</i>) |
| IS 1315 : 1977 | Method for determination of linear density of yarns spun on cotton system (<i>first revision</i>) | IS 4905 : 2015/ ISO 24153 : 2009 | Random sampling and randomization procedures (<i>first revision</i>) |
| IS 1347 : 1972 | Specification for inland packaging of cotton cloth and yarn (<i>first revision</i>) | IS 14466 : 1997/ ISO 8498 : 1990 | Fabrics — Description of defects — Vocabulary |
| IS 1383 : 2023 | Methods for determination of scouring loss in grey and finished cotton textile materials (<i>second revision</i>) | IS 17263 : 2022 | Textiles — Polyester staples fibres — Specification (<i>first revision</i>) |
| IS 1390 : 2022 | Textiles — Determination of pH of aqueous extract (<i>third revision</i>) | | |

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ANNEX B

(Table 1)

DETERMINATION OF TERRY RATIO

B-1 Cut out a 10 cm × 10 cm specimen from the fabric and condition the specimen in the standard atmosphere for testing. Remove warp threads from the specimen so as to provide 10 threads each from the specimen of ground warp and of terry warp. Determine the mean straightened length of each group of 10 threads.

Express the terry ratio as the ratio of the mean straightened length of the terry warp threads to the mean straightened length of the ground warp threads.

ANNEX C

(Foreword)

COMMITTEE COMPOSITION

Man-Made Fibers, Cotton and their Products Sectional Committee, TXD 31

| <i>Organization</i> | <i>Representative(s)</i> |
|---|--|
| Textile Committee, Mumbai | SHRI KARTIKAY DHANDA (<i>Chairperson</i>) |
| All India Cotton Farmer Producer Organization Association, Mumbai | SHRI MANISH PRATAP DAGA SHRI RAJENDRA LAXMAN KARPE (<i>Alternate</i>) |
| Association of Synthetic Fibre Industries, New Delhi | SHRI M. S. VERMA |
| AYM Syntex, Dadra and Nagar Haveli, Silvassa | SHRI ARNAB SAMANTHA |
| Central Institute for Cotton Research, Nagpur | DR G. T. BEHERE DR S. MANICKAM (<i>Alternate</i>) |
| Coats Groups, Madurai | SHRI MERIL JENSON |
| Confederation of Indian Textile Industry, New Delhi | SHRIMATI CHANDRIMA CHATTERJEE SHRI ANMOL GUPTA (<i>Alternate</i>) |
| Consumer Guidance Society of India, Mumbai | DR SITARAM DIXIT DR M. S. KAMATH (<i>Alternate</i>) |
| Cotton Association of India, Mumbai | SHRI ATUL S. GANTARA SHRI VINAYAK N. KOTAK (<i>Alternate</i>) |
| Defence Materials and Stores Research and Development Establishment, Kanpur | SHRI ASHOK KUMAR YADAV SHRI BISWA RANJAN DAS (<i>Alternate</i>) |
| Department of Chemicals and Petrochemicals, New Delhi | SHRI O. P. SHARMA |
| Federation of Gujarat Weaver Welfare Association, Surat | SHRI ASHOK JIRAWALA SHRI SANJAY DESAI (<i>Alternate</i>) |
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| Office of Textile Commissioner, Mumbai | SHRI SOURABH KULKARNI SHRI PRANAV PARASHAR (<i>Alternate</i>) |
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Amendments Issued Since Publication

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