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सेल्वेज टेप — विशिष्टि

(पहला पुनरीक्षण)

Textiles — Cotton Selvedge Tape for
Electric Cables — Specification

(First Revision)

ICS 59.060.10

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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Technical Textiles for Clothtech Applications including Narrow Fabrics and Braids Sectional Committee had been approved by the Textile Division Council.

This standard was published in 1964. The current revision has been made in the light of experience gained since its publication and to incorporate the following major changes:

- a) Title of the standard has been modified;
- b) BIS certification marking clause has been modified; and
- c) References to standard have been updated.

Tapes conforming to this specification are intended to be used as bedding for electric cable meant for laying underground or to be drawn into ducts.

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

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 SELVEDGE TAPE FOR ELECTRIC
CABLES — SPECIFICATION***(First Revision)***1 SCOPE**

1.1 This standard prescribes constructional details and other particulars of six varieties of unsized cotton selvedge tapes for electric cables.

1.2 This standard does not specify the general appearance and feel of tape (*see 4.4*).

2 REFERENCES

The standards given below 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:

<i>IS No.</i>	<i>Title</i>
IS 196 : 1966	Atmospheric conditions for testing (<i>revised</i>)
IS 1390 : 2022/ ISO 3071 : 2020	Textiles — Determination of pH of aqueous extract (<i>third revision</i>)
IS 1954 : 2024/ ISO 22198 : 2006	Textiles — Fabrics — Determination of width and length (<i>third revision</i>)
IS 1963 : 1981	Methods for determination of threads per unit length in woven fabrics (<i>second revision</i>)
IS 1969 (Part 2) : 2018	Textiles — Tensile properties of fabrics: Part 2 Determination of maximum force using the grab method (<i>fourth revision</i>)

3 GENERAL REQUIREMENTS**3.1 Yarn**

The yarn used in the manufacture of tape shall be cotton yarn and shall be satisfactory in evenness of thread, and reasonably free from defects such as neps, slubs, knots, kinks, etc. The yarn shall be free

from size or filling materials. The approximate count of warp and weft yarn is given in [Table 1](#).

3.2 Tape

The tape shall be woven firmly and uniformly. The selvages shall be uniform throughout. Tapes of varieties 1 and 3 to 6 shall be woven in plain weave and of variety 2 in herringbone twill weave.

4 SPECIFIC REQUIREMENTS

4.1 The tape shall comply with the requirements of [Table 1](#). Permissible tolerances and the methods of test for the various requirements have also been prescribed in the table.

4.2 pH Value

The pH value of the aqueous extract of tape shall be not less than 6.0 nor more than 8.0.

The pH value of the aqueous extract of tape shall be determined by the hot method prescribed in IS 1390.

4.3 Length

The length of tape in a roll shall be 50 m or 100 m or any other length as agreed to between the buyer and the seller.

The length of tape of each roll constituting the sample under test shall be determined by the method prescribed in IS 1954.

4.4 Sealed Sample

If, in order to illustrate or specify the general appearance or feel of tape, a sample has been agreed upon and sealed, the supply shall be in conformity with the sample in such respects.

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

5 PACKAGING

5.1 Unless otherwise agreed between the buyer and seller, The tape shall be wound on a hard core

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of sufficient strength to withstand the pressure of the tape when wound tightly on it. The dimensions of the core shall be as agreed to between the buyer and the seller. The core shall not be loosened when the roll is dropped on floor from a height of 1 m. Short length pieces, if any, in the roll shall not be shorter than 20 m. A roll of 50 m length shall not contain more than 2 pieces. The number of short length pieces in rolls containing more than 50 m length of tape shall be as agreed to between the buyer and the seller. A maximum of 10 percent of short length pieces shall be permitted in a lot. The ends of the short length pieces shall be overlapped and sewn neatly across the whole width of the tape. Pins or staples shall not be used for joining the ends.

6 MARKING

6.1 Each roll shall be legibly marked at both ends with the following information:

- a) Variety number and the legend;

- b) Width;
- c) Thickness;
- d) Length of roll and short length piece, if any;
- e) Manufacturer's name, initials, or trademark, if any;
- f) Month and year of manufacture; and
- g) Any other information as required by the law in force.

6.2 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 may be marked with the Standard Mark.

Table 1 Particulars of Unsized Cotton Selvedge Tape for Electric Cables

(Clauses [3.1](#), [4.1](#), [8.4](#) and [A-5](#))

SI No.	Variety No.	Width in mm	French Count of Yarn (or Universal Count) (see Note)		Ends in Full Width	Picks per dm (or Inch)	Thickness in mm	Weight in g per 100 m Roll	Breaking Load in kg on Full Width × 20 cm Test Length <i>Min</i>
			Warp	Weft					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
i)	1	50	Nf 34/2 (or 15 tex × 2)	Nf 34 (or 15 tex)	140	180 (or 46)	0.28	550	50
ii)	2	50	Nf 68/2 (or 7.4 tex × 2)	Nf 68/2 (or 7.4 × 2 tex)	300	200 (or 50)	0.30	600	80
iii)	3	70	Nf 34/2 (or 15 tex × 2)	Nf 25 (or 20 tex)	168	180 (or 46)	0.28	750	60
iv)	4	80	Nf 34/2 (or 15 tex × 2)	Nf 25 (or 20 tex)	192	180 (or 46)	0.28	850	70
v)	5	90	Nf 34/2 (or 15 tex × 2)	Nf 25 (or 20 tex)	216	180 (or 46)	0.28	960	80
vi)	6	110	Nf 34/2 (or 15 tex × 2)	Nf 25 (or 20 tex)	264	180 (or 46)	0.28	1 180	95
Tolerance		± 2 percent	–	–	± 5 percent	± 5 percent	± 10 percent	± 5 percent	± 5 percent
Method of test		IS 1954	–	–	IS 1963		IS 1954	Annex A	IS 1959

NOTES

- 1 French count = the number of 1 000 m hanks in 0.5 kg.
- 2 Universal count, in tex = the number of grams per kilometre.
- 3 To convert French count to universal count in tex, divide 500 by French count.
- 4 To determine number of picks per inch, multiply the value for number of picks per diameter obtained on test by 0.254.
- 5 The measurement for width shall be made to an accuracy of 1 mm.
- 6 Thickness shall be determined at a pressure of 070 kg/cm³. The area of the presser foot of the micrometre gauge shall be 1 cm². Separate readings shall be taken over the selvages and between the selvages.
- 7 Corresponding requirement in cotton count (British) of the French count specified for various varieties are given below:

<i>French Count</i>	<i>British (English) Count</i>
Nf 68	80s
Nf 34	40s
Nf 25	30s

7 PACKING

A set of 10 rolls shall be wrapped in polythene film and the sets packed in bundles or cases as agreed to between the buyer and the seller.

8 SAMPLING

8.1 Lot

The quantity of tape of one definite variety delivered to one buyer against one dispatch note shall constitute a lot.

8.2 The conformity of a lot to the requirements of this standard shall be determined on the basis of tests carried out on the rolls of tape selected from the lot.

8.3 Unless otherwise agreed to between the buyer and the seller the number of rolls of tape to be selected at random from the lot shall be in accordance with col (3) of [Table 2](#).

8.4 For evaluating (a) width, (b) ends in full width, (c) picks per decimeter (or inch), (d) thickness, (e) weight, and (f) length of tape in the lot as in [Table 1](#), the rolls selected as in col (3) of [Table 2](#) shall constitute the test specimens.

For evaluating (a) breaking load, and (b) pH value, the number of rolls specified in col (5) of [Table 2](#) shall constitute the test sample. The rolls shall be selected at random from those selected as in col (3). The required test specimens shall be drawn from each of the rolls and subjected to corresponding

tests.

8.5 Criteria for Conformity

The lot shall be considered to be in conformity with the requirements of the standard, if the following conditions are satisfied:

- a) The number of rolls found defective in respect of any characteristic mentioned in [8.4](#) (except length), do not exceed the corresponding number given in col (4) of [Table 2](#);

NOTE — In the case of length, the value obtained for the length of each roll shall be compared with its specified, declared or marked length. The mean percentage of deficiency in length, if any, shall be determined and made applicable to the lot.

- b) From the observed values of breaking load, average (\bar{x}) and the range (R) are calculated and the value of the expression $\bar{x} - 0.4R$ is greater than or equal to the specified value;
- c) From the observed pH values, the average \bar{x} and the range R are calculated and the expression $\bar{x} + 0.4R$ and $\bar{x} - 0.4R$ lie within the specified limit;
- d) Average (\bar{x}) is the value obtained by dividing the sum of observed values by the number of tests; and
- e) Range (R) is the difference between the maximum and the minimum in a set of observed values.

Table 2 Sample Size and Criteria for Conformity

(Clauses [8.3](#), [8.4](#), [8.5](#) and [A-5](#))

SI No.	Lot Size (No. of Rolls)	Sample Size	Permissible No. of Defective Rolls	Sub-Sample Size
(1)	(2)	(3)	(4)	(5)
i)	Up to 100	5	0	5
ii)	101 to 300	10	1	6
iii)	301 to 500	15	1	7
iv)	501 to 800	25	2	8
v)	801 to 1 300	35	3	9
vi)	1 301 and above	50	4	10

ANNEX A

[\(Table 1\)](#)

METHOD FOR DETERMINATION OF WEIGHT

A-1 TEST SPECIMENS

For the purpose of this test, all rolls in the sample under test (*see* [8.4](#)) shall constitute the test specimens.

A-2 ATMOSPHERIC CONDITIONS FOR TESTING

Unless otherwise provided for in an agreement between the buyer and the seller, the test shall be carried out in a standard atmosphere at (65 ± 2) percent relative humidity and (27 ± 2) °C temperature (*see* IS 196), or within a period of five minutes of the removal of a test specimen from the standard atmosphere.

A-3 CONDITIONING OF TEST SPECIMENS

A-3.1 Prior to evaluation, the test specimens shall be conditioned to moisture equilibrium in the standard atmosphere (*see* [A-2](#)), unless otherwise provided for in an agreement between the buyer and the seller.

A-3.2 When the test specimens have been left in the

standard atmosphere for 24 h in such a way as to expose, as far as possible, all portions of the test specimens to the atmosphere, they shall be deemed to have reached moisture equilibrium.

A-4 PROCEDURE

A-4.1 Serially mark each test specimen.

A-4.2 Take the test specimens in the serial order and determine their weight correct to the nearest 5 g. From the observed weight value of each test specimen and its observed length value (*see* [4.3](#)), calculate its weight per 100 m.

A-5 REPORT

Report the lot to be in conformity with the requirements of [Table 1](#) if the number of rolls whose weight vary from the applicable value specified in [Table 1](#) by more than the tolerance prescribed in the table, is not more than the corresponding number given in col (4) of [Table 2](#).

ANNEX B

(Foreword)

COMMITTEE COMPOSITION

Technical Textiles for Clothtech Applications including Narrow Fabrics and Braids Sectional Committee, TXD 39

<i>Organization</i>	<i>Representative(s)</i>
Additional Controller CQA (General Stores), DGQA, Ministry of Defence, Kanpur	SHRI A. CHOWDHURY (Chairperson)
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Indian Technical Textile Association, Mumbai	DR ANUP RAKSHIT SHRI VIKRAM JAIN (<i>Alternate</i>)
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