

भारतीय मानक
Indian Standard

IS 271 : 2020

वस्त्रादि — सफ़ेद, टोसा और देसी अनकट
भारतीय जूट की ग्रेडिंग
(पांचवां पुनरीक्षण)

Textiles — Grading of White,
Tossa and Daisee Uncut Indian Jute
(*Fifth Revision*)

ICS 55.080; 59.060.20; 91.100.15

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Price Group 4

Jute and Jute Products Sectional Committee, TXD 03

FOREWORD

This Indian Standard (Fifth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Jute and Jute Products Sectional Committee had been approved by the Textiles Division Council.

This standard was first published in 1950 and subsequently revised in 1969, 1975, 1987 and 2003. The original standard covered WHITE (*Corchorus Capsularis*) and TOSSA (*Corchorus Olitorius*) jute and classified them into 4 grades, namely, tops, middles, bottoms and cross (X). The first revision of the standard included DAISEE (*Corchorus Olitorius*) jute in addition to WHITE and TOSSA. The WHITE jute was classified into 8 grades, namely, W1, W2, W3, W4, W5, W6, W7 and W8; and TOSSA and DAISEE jute into 8 grades, namely, TD1, TD2, TD3, TD4, TD5, TD6, TD7 and TD8. A scoring system was also introduced to grade the fibres on the basis of the different characteristics. In the second revision, the scores for different characteristics were modified to facilitate effective, implementation of the standard. In the third revision, 'Defects' parameter in respect of grades W2 to W5 for WHITE jute and TD2 to TD5 for TOSSA and DAISEE were modified. The fourth revision of this standard was taken up to incorporate the modified scores for different characteristics and maximum root content for better implementation by the jute growers and traders.

This standard has been taken up for revision again to include the following major changes:

- a) Instrumental methods for assessment of different quality characteristics/parameters for determination of jute grading has been included;
- b) Classification of Jute grading has been reduced from 8 to 5 grades. The WHITE jute is classified into 5 grades, namely, W-1, W-2, W-3, W-4, and W-5; TOSSA and DAISEE jute are classified into 5 grades, namely, TD-1, TD-2, TD-3, TD-4, and TD-5;
- c) Based on relative importance of different quality characteristics/parameters for determination of jute grading, score weightage for the same has been reassigned;
- d) Bulk density parameter for determination of jute grading has been excluded and merged with fineness; and
- e) The colour description of WHITE, TOSSA, and DAISEE jute has been changed to 3 (Good, Average, Poor) term from the existing 5 terms.

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 : 1960 'Rules for rounding off numerical values (*revised*)'. 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 — GRADING OF WHITE, TOSSA AND DAISEE UNCUT INDIAN JUTE

(Fifth Revision)

1 SCOPE

This standard covers the grading of White, Tossa and Daisee jute from which the roots have not been cut.

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 editions of the standards indicated in Annex A.

3 TERMINOLOGY

For the purpose of this standard, the following definitions along with definitions given in IS 5476 shall apply.

3.1 Jute — A multicellular fibre obtained from the bast of various species of *Corchorus*, of which the round pod jute (*Corchorus Capsularis* or WHITE jute) and the long pod jute (*Corchorus Olitorius* or TOSSA or DAISEE jute) are the most important. The fibre strands are long usually varying from 1.5 to 3.5 m.

3.2 Parcel — A consignment containing certain number of bales, bundles or drums.

3.3 Strength — The ability of the fibre bundle (of specified weight for instrumental method) to resist strain or rupture induced by external forces.

3.4 Colour — The property of a fibre which distinguishes its appearance as redness, yellowness, greyness, etc.

3.5 Lustre — It depends on the display of light reflected from the fibre exposed to normal light. Higher lustre in jute is generally a characteristic of a better quality fibre.

3.6 Fineness — A measure of diameter (width) or mass per unit length, or both, of the fibre filament. The finer the fibre, better the spinning quality.

3.7 Reed/Fibre streak — The fibre system from one individual jute plant.

3.8 Reed Length — The entire length of the reed including the root and tip.

3.9 Effective Reed Length — The length of the reed after the root and crop ends have been removed.

3.10 Root — The hard barkly region at the lower end of the reed normally called root or cuttings.

3.11 Defects

3.11.1 Major Defects — Centre root, dazed and over-retted fibre, runners, knots, mossy fibres and entangled sticks.

3.11.2 Minor Defects — Weak croppy end, gummy fibre, loose leaf, loose sticks, and specks.

3.12 Centre Root (BUK CHHAL) — The hard barkly region in the middle part of the reed which requires additional softening treatment.

3.13 Dazed Fibre — Fibre which is weak in strength and dull in appearance, due to usually being stored in moist condition.

3.14 Over Retted Fibre — Fibre which has lost its strength and lustre on decomposing due to long period of retting.

3.15 Runners — Hard barkly fibre running from the lower end to the middle region, more or less continuously.

3.16 Knots — Stiff barkly spots in the body of the strand which break the continuity of fibre when opened.

3.17 Mossy Fibre — It is a type of vegetation which sometimes gets attached to the jute plant during flood conditions; some portions may remain on the jute fibre even after retting and washing. It can be separated by hand.

3.18 Sticks, Entangled Sticks and Loose Sticks — Sticks are remnants of woody part of jute plant over which fibre sheath is formed. Entangled sticks are broken sticks which are linked with fibre mass and are not easily removable. Loose sticks are broken sticks easily removable by shaking.

IS 271 : 2020

3.19 Croppy Fibre — Fibre with top ends rough and hard (but not barky) caused by careless retting.

3.20 Weak Croppy Fibre — Fibre over a length of about 30 cm at the top and which has become unusually weak.

3.21 Gummy Fibres — Fibres held together by undissolved pectinous matter.

3.22 Leaf, Loose Leaf — Dark grey leafy or paper like substance (remnants of loosened skin of the plant) appearing on the strand. Loose leaves are those that lie loosely on the fibre and are easily removable.

3.23 Specks — Soft barky spots in the body where fibres can be separated with some effort without breaking their continuity, though they may remain as weak spots.

3.24 Hunka — The very hard barky fibre running continuously from the lower end to almost the tip of the reed.

3.25 Natural Dust — The dust which might get associated with the fibre during the process of its production.

4 GRADING

4.1 All TOSSA and DAISEE raw jute (from which the roots have not been cut) shall be classified into the following 5 grades: TD1, TD2, TD3, TD4, and TD5.

4.2 White raw jute (from which the roots have not been cut) shall be classified into the following 5 grades: W-1, W-2, W-3, W-4, and W-5.

4.3 The following quality characteristics, which have a bearing on the quality, have been taken into account in assessing the grade of jute fibres:

- a) Strength;
- b) Root content;
- c) Defects;
- d) Fineness; and
- e) Colour.

4.3.1 Strength: 30 marks

Sub-group with Score for Strength Parameter				
Quality (Hand and Eye)	Excellent	Good	Average	Poor
Value, g/tex (Instrumental)	≥ 25	< 25 – 20	< 20 – 15	< 15
Score	30	23	13	04

4.3.2 Colour: 10 marks

Sub-group with Score for Colour			
Quality (hand and eye)	Good	Average	Poor
Value, whiteness index (Instrumental)	≥ 65	≥ 45 – < 65	< 45
Score	10	05	03

4.3.2.1 The colour description of WHITE, TOSSA and DAISEE jute in relation to the terms used for the purpose of grading is given below:

Class	Colour Description		
	WHITE	TOSSA	DAISEE
Good (≥ 65)	Light creamy to white	Light creamy to reddish white	Reddish to brownish with some light grey
Average (< 65 to ≥ 45)	Brownish to reddish white with some light grey	Light grey to copper colour	Light grey
Poor (< 45)	Grey to dark grey	Grey to dark grey	Grey to dark grey

4.3.3 Fineness: 15 marks

Sub-group with Score for Fineness Parameter			
Quality (hand and eye)	Very Fine	Fine	Coarse
Value, tex (Instrumental)	≤ 1.8 for White jute and ≤ 2.0 for Tossa jute	> 1.8 – 3.0 for White jute and > 2.0 – 3.0 for Tossa jute	> 3.0
Score	15	10	05

4.3.4 Root content: 20 marks

Sub-group with Score for Root Content Parameter				
Quality (hand and eye)	Excellent	Good	Average	Poor
Value, length percent (Instrumental)	≤ 5	> 5 ≤ 8	> 8 ≤ 10	> 10
Score	20	15	08	03

4.3.5 Defects: 25 marks

Sub-group with Score for Defect Parameters				
Quality (hand and eye)	Excellent	Good	Average	Poor
Value, weight percent (Instrumental)	0.5	1.0	1.5	> 1.5
Score	25	17	9	5

4.4 The hand and eye method may be used for assessing these qualities for commercial purposes and in the same time instrumental methods are also available for scientific assessment of certain important characteristics.

NOTE — For comparing strength by hand, tufts of fibre of approximately equal size may be held equal distance apart, and broken longitudinally without jerk. Good lustre also indicates good fibre strength. Root content in terms of percentage by mass may be judged by observing the extent of barks along the length.

4.5 The requirement of each individual quality characteristic in case of each of the 5 grades for WHITE, TOSSA and DAISEE jute in Table 1 for hand and eye method and Table 2 for instrumental method.

4.6 Relative weightage to each of the quality characteristics has been attributed by a system of scoring scheme to the various grades. The allocation of scores for the different quality characteristics as in each grade for TOSSA and DAISEE and WHITE jute shall be done on the basis of Table 1 or Table 2.

Table 1 Score for “Hand and Eye” Method Grading

(Clauses 4.5 and 4.6)

Sl No.	Grade	Strength	Defects	Root Content	Fineness	Colour	Total Score
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	Reference	Need strength to break the fibre and sharp audible sound at the time of breakage (Excellent 30)	Free from major defects but 10 percent minor defects may be allowed (25)	< 5 percent length wise (20)	Very Fine (15)	Light creamy to reddish yellow with lustre (10)	100
ii)	TD-1/ W-1	Need less strength to break the fibre and sound will be available at the time of breakage (Good 23)	90 percent free from major defects but 20 percent minor defects may be allowed (17)	> 05 percent - 8 percent length wise (15)	Very Fine (15)	Light creamy to reddish yellow with lustre (10)	80
iii)	TD-2/ W-2	Need less strength to break the fibre and sound will be available at the time of breakage (Good 23)	80 percent free from major defects and 30 percent minor defects may be allowed (09)	> 08 percent - 10 percent length wise (08)	Fine (10)	Light creamy to reddish yellow with lustre (10)	60
iv)	TD-3/ W-3	Need less strength to break the fibre and feeble sound at the time of breakage (Average 13)	80 percent free from major defects and 30 percent minor defects may be allowed (09)	> 08 percent - 10 percent length wise (08)	Coarse (05)	Reddish / brownish with some light grey (05)	40
v)	TD-4/ W-4	Easily break the fibre and no sound at the time of breakage (Poor 04)	70 percent free from major defects (05)	> 10 percent length wise (03)	Coarse (05)	Light grey to dark grey (03)	20
vi)	TD-5/ W-5	Entangled or any other jute not suitable for any of the above grades but of commercial value					

For WHITE jute colour description is different and mentioned in the colour column of item no. 4.3.2.1.

NOTES

1 The minimum reed length should be 150 cm, or the effective reed length should not be less than 100 cm except for TD5.

2 Jute should be in dry storable condition.

3 Jute should be free from HUNKA, mud and other foreign materials.

4 Natural dust may be allowed in grades TD3 to TD4 with proportionate discount.

5 Root content will include hard barky cropy ends.

6 A parcel of jute which would not secure full marks for a particular grade shall still be considered for that grade with suitable discount to be settled between the buyer and seller, provided its score is not less, by 50 (or more) percent of the difference, between the maximum scores for that and the next lower grade. When the score is less by 50 (or more) percent of the difference, the buyer will have option to reject or settle with a suitable discount. Scores on the table may be taken as guidance for determining the discount.

7 For instrumental determination of various characteristics like strength, defects, root content, fineness, etc, reference to the relevant part of IS 7032.

IS 271 : 2020

Table 2 Score and Value for Instrumental Grading
(Clauses 4.5 and 4.6)

Sl No.	Grade	Strength (g/tex)	Defects (Weight Percent)	Root Content (L percent)**	Fineness* (tex)	Colour (Whiteness)	Total Score
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	Reference	Excellent 30 (≥ 25)	(≤ 0.5) 25	(< 05) 20	Very Fine 15 (≤ 2)	Good 10 (≥ 56)	100
ii)	TD-1/ W-1	Good 23 (< 25 – 20)	(> 0.5 – 1.0) 17	(05 – < 08) 15	Very Fine 15 (≤ 2)	Good 10 (≥ 56)	80
iii)	TD-2/ W-2	Good 23 (< 25 – 20)	(> 1.0 – 1.5) 09	(08 – < 10) 08	Fine 10 (> 2 – 3)	Good 10 (≥ 56)	60
iv)	TD-3/ W-3	Average 13 (< 20 – 15)	(> 1.0 – 1.5) 09	(08 – < 10) 08	Coarse 05 (> 3)	Average 05 (< 56 – ≥ 31)	40
v)	TD-4/ W-4	Poor 04 (< 15)	(> 1.5) 05	(>10) 03	Coarse 05 (> 3)	Poor 03 (< 31)	20
vi)	TD-5/ W-5	Entangled or any other jute not suitable for any of the above grades but of commercial value					
Method of Test, Ref to	IS 7032 (Part 7)	IS 7032 (Part 4)	IS 7032 (Part 3)	IS 7032 (Part 8)	See Note 8		

* For WHITE jute air flow fineness value range: Very Fine-(≤ 1.8) tex, Fine-($> 1.8 - 3$) tex, Coarse-(> 3) tex

** 'L' denotes reed/streak length

NB: Bulk Density parameter has been omitted and merged with fineness

NOTES:

1 The minimum reed length should be 150 cm, or the effective reed length should not be less than 100 cm except for TD5

2 Jute should be in dry storable condition.

3 Jute should be free from HUNKA, mud and other foreign materials.

4 Natural dust may be allowed in grades TD3 to TD5 with proportionate discount.

5 Root content will include hard barky croppy ends.

6 A parcel of jute which would not secure full marks for a particular grade shall still be considered for that grade with suitable discount to be settled between the buyer and seller, provided its score is not less, by 50 (or more) percent of the difference, between the maximum scores for that and the next lower grade. When the score is less by 50 (or more) percent of the difference, the buyer will have option to reject or settle with a suitable discount. Scores on the table may be taken as guidance for determining the discount.

7 For instrumental determination of various characteristics like strength, defects, root content, fineness, etc, reference to the relevant part of IS 7032.

8 Value of the corresponding parameters, mentioned in Instrumental method, was optimized using the standard instruments developed by ICAR-NINFET (erstwhile NIRJAFT).

5 PACKING

5.1 The jute shall be so packed that *MORAHS* in any one bale, bundle or drum are of only one grade.

5.2 Each bale, bundle or drum shall have a grade-tag indicating the year of harvest, variety, grade and trade-mark.

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
5476 : 1986	Glossary of terms relating to jute (<i>first revision</i>)	(Part 2) : 1986	Reed length (<i>first revision</i>)
		(Part 3) : 1986	Root content (<i>first revision</i>)
7032 : 1986	Physical methods of test for uncut Indian Jute, Mesta and Bimli (<i>first revision</i>)	(Part 4) : 1986	Defects (<i>first revision</i>)
		(Part 5) : 1986	Foreign matter (<i>first revision</i>)
(Part 1) : 1986	General (<i>first revision</i>)	(Part 7) : 1986	Bundle strength (<i>first revision</i>)
		(Part 8) : 1986	Fineness (<i>first revision</i>)

IS 271 : 2020

ANNEX B

(Foreword)

COMMITTEE COMPOSITION

Jute & Jute Products Sectional Committee, TXD 03

<i>Organization</i>	<i>Representative(s)</i>
JUTE COMMISSIONER	SHRI MOLOY CHANDAN CHAKRABORTY, IDAS (<i>Chairman</i>)
Balrampur Chini Mills Ltd, Department of Jute & Fibre Technology, Institute of Jute Technology, Kolkata	REPRESENTATIVE PROF S. K. GOSH DR ASIS MUKHOPADHYAY (<i>Alternate</i>)
Dima Products, Mumbai	SHRI NIRAV MEHTA
East India Commercial Co Ltd, Elurui	SHRI BRIJGOPAL LUNANI SHRI MANOHARGOPAL LUNANI (<i>Alternate</i>)
Eskaps (India) Private Ltd, Kolkata	SHRI SATYAJIT CHAKRABORTY SHRI PRADIP KUMAR MANDAL (<i>Alternate</i>)
Food, Civil Supplies & Consumer Protection Department, Govt of Chhattisgarh	REPRESENTATIVE
Food, Corporation of India, New Delhi	SHRI A. RAJAGOPAL SHRI A. K. U. BHAN SINGH (<i>Alternate</i>)
Food, Supplies & Consumer Welfare, Govt of Orissa	SHRI SHASHANK SEKHAR NAYAK
Food, Civil Supplies & Consumer Affairs Department, Govt of Haryana	SHRI JAIPAL SINGH
Food, Civil Supplies & Consumer Protection Department, Govt. of Madhya Pradesh	REPRESENTATIVE
Food, Civil Supplies & Consumer Protection Department, Govt of Punjab	SHRI AMARJIT SINGH SHRI LOVEKESH SHARMA (<i>Alternate</i>)
Ganges Jute Pvt Ltd, Kolkata	SHRI J. K. BEHARA SHRI A. CHAKRABORTHY (<i>Alternate</i>)
Gloster Limited, Kolkata	SHRI D. C. BAHETI
Hukumchand Jute Mills, Kolkata	SHRI S. K. CHANDRA SHRI R. K. SRIVASTAV (<i>Alternate</i>)
Indian Jute Industries Research Association, Kolkata	SHRI PALASH PAUL SHRI PARTHA SANYAL (<i>Alternate</i>)
Indian Jute Mills Association, Kolkata	SHRI S. K. CHANDRA SHRI GHISA RAM VERMA (<i>Alternate</i>)
Indian Sugar Mills Association, New Delhi	SHRI GIRISH KUMAR THAKUR SHRI DEEP MALIK (<i>Alternate</i>)
Indian Toxicology Research Centre, Lucknow	DR V. P. SHARMA
Kamarhatti Co Limited	SHRI S. K. AGARWAL
M/S Murlidhar Ratanlal Exports, Kolkata	SHRI BHUDIPTA SAHA SHRI A. K. PALIT (<i>Alternate</i>)
M/S SGS India	SHRI SHAILESH SHARMA SHRI BHASKER SEN (<i>Alternate</i>)
Ministry of Consumer Affairs, Food & Public Distribution, New Delhi	SHRI N. SANYAL SHRI R. P. BHAGRIA (<i>Alternate</i>)

<i>Organization</i>	<i>Representative(s)</i>
National Institute of Natural Fibre Engineering and Technology, Kolkata	DR SURAJIT SENGUPTA DR MANIK BHOWMIK (<i>Alternate</i>)
National Jute Board, Kolkata	SHRI ARVIND KUMAR SHRI MAHADEB DUTTA (<i>Alternate</i>)
National Jute Manufacturers Corporation Ltd, Kolkata	SHRI A. GHOSH SHRI K. K. BOSE (<i>Alternate</i>)
Office of the Jute Commissioner, Kolkata	SHRI SOUMYADIPTA DATTA SHRI P. K. BISWAS (<i>Alternate</i>)
Punjab State Civil Supplies Corporation Ltd, Chandigarh	SHRI ASHOK DADHWAL
Sahakari Khand Udyog Mandal Ltd, Gujarat	SHRI BHOOMITRA R. ARYA
Shri Kamrej Vibhag Sahakari Khand Udyog Mandli Ltd, Gujarat	SHRI KANTILAL V. PATEL SHRI K. V. R. K. YUGANDHAR (<i>Alternate</i>)
The Jute Corporation of India Limited	SHRI KALYAN MAJUMDAR SHRI A. MAJUMDAR (<i>Alternate</i>)
West Bengal Pollution Control Board	SHRI SUBRATA GHOSH SHRI PRABIR BARAI (<i>Alternate</i>)
Govt E Portal (GeM)	REPRESENTATIVE
BIS Directorate General	SHRI A. K. BERA, SCIENTIST 'F' AND HEAD (TXD) [REPRESENTING DIRECTOR GENERAL (<i>Ex-officio</i>)]

Member Secretary

SHRI P. N. MURALI
SCIENTIST 'D' (TXD), BIS

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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