
नारियल के रेशे — मैटिंग, मोरजूक और
कालीन

(पहला पुनरीक्षण)

Coir — Mattings, Mourzouks and
Carpets

(First Revision)

ICS 55.040; 59.060.10; 59.080.40

© BIS 2020



भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली – 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002
www.bis.gov.in www.standardsbis.in

August 2020

Price Group 9

FOREWORD

This Indian Standard (Part 1 to 6) (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Coir and Coir Products Sectional Committee had been approved by the Textile Division Council.

This standard was first published in 1989, further it has now been revised to incorporate the additional requirements for Ecomark (optional).

The Ministry of Environment and Forests, Government of India has instituted a scheme for labelling environment friendly products known as 'Ecomark scheme'. This standard is based on the criteria as notified by the Government of India *vide* Gazette Notification No. 893(E), dated 18 September 2018 for labelling Coir and Coir products as environment friendly.

The Ecomark scheme is being operated by the Bureau of Indian Standards. However, to obtain the licence to use the Ecomark on a product, it is also essential to obtain BIS licence to use the Standard Mark as per the relevant Indian Standard for that product.

Part 1 of this standard deals with general requirements, additional requirements of Ecomark (optional), terminology, dimensions, marking and labelling, packing, sampling and criteria for conformity and methods of tests which are applicable to the subsequent parts; and Parts 2 to 6 deal with specific requirements.

Coir mattings are woven on powerloom and hand loom operation of which is very similar to that of weaving of cloth and other textiles. It is customary to use a limited number of aloe or sisal or jute strands in both warp and weft to pick out the pattern.

Coir mourzouks are usually manufactured in a variety of sizes and patterns and are heavy and durable. Mourzouk weaving differs from matting-weaving insofar as it is woven on special looms and the surface and the pattern of the mourzouk are formed by the weft and not by the warp. On completion of weaving, the ends of the warp are drawn back into the fabric to give a strong and straight-edged finish. This type of weaving enables the production of intricate, geometrical and floral designs.

Coir carpets commonly known as 'Alleppey Carpets' are manufactured in the same way as mourzouk, but with double warp threads instead of single, to produce a very much thicker and heavier material. Because of this doubling of the warp, a ribbed effect is produced in the finished material.

The coir matting for cricket pitches is a special type of matting which is usually fabricated out of only certain types of coir yarn in accordance with well accepted practices.

The composition of the committee responsible for the formulation of this standard is given at Annex D.

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***COIR — MATTINGS, MOURZOUKS AND CARPETS****PART 1 GENERAL REQUIREMENTS***(First Revision)***1 SCOPE**

This standard (Part 1) covers general consideration like terminology, general requirements, dimensions, additional requirement for Ecomark (optional) marking and labelling, packing, sampling and criteria for conformity and various method of tests for coir mattings, mourzouks and carpets.

2 REFERENCES

The standards listed in Annex A 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 the standards.

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Alapat Yarn — Wheel or hand spun 2-ply yarn, medium twisted, made out of retted coir fibre, varying in colour from bright natural to darkish grey, usually spun in 11 to 15 score.

3.2 Aloe Yarn — Yarn spun from fibre extracted from the leaf of the plant ALOE (*Liliacealsp*), having a characteristic creamy-white colour of its own, medium-twisted spun in the scorage ranging from 12 to 16.

3.3 Anjengo Yarn — Wheel spun 2-ply yarn, hard twisted made out of long stapled well retted coir fibre of uniform texture, natural bright coloured, usually spun in 12 to 20 score.

3.4 Anjengo/M Yarn — Wheel spun 2-ply yarn very hard twisted made out of long stapled, well retted coir fibre of uniform texture, natural bright coloured, usually spun in 10 to 15 score.

3.5 Aratory Yarn — Wheel spun 2-ply yarn, with medium twisted single strand and hard twisted in doubling, made out of long or medium stapled retted coir fibre, appreciably hairy, light natural coloured, usually spun in 11 to 18 score.

3.6 Ashtamudy Yarn— Wheel spun 2-ply yarn, medium twisted, made out of medium and short stapled retted coir fibre, slightly varying in colour from brownish to grey, usually spun in 8 to 13 score.

3.7 Bepore Yarn — Wheel or hand spun, soft twisted, 2-ply yarn, made out of retted coir fibre, natural brown to light grey in colour, usually spun in 6 to 9 score.

3.8 Beach Yarn — Wheel or hand spun, soft twisted, 2-ply yarn, made out of coir fibre extracted from green husks soaked in water for brief periods, natural reddish brown in colour containing varying quantity of pith, usually spun in 9 to 14 score.

3.9 Four Treadle Weave — In this type of weave the twill lines are formed on both sides of the fabric and the matting is, therefore, more ornate in appearance and reversible. It is used for the production of superior quality mattings in a variety of patterns, such as reversible twill, reversible herringbone reversible diamond, etc.

3.10 Lot — In any consignment, mattings or mourzouks or carpets of same designation delivered to a buyer against one dispatch note, shall constitute a lot.

3.11 Mangadan-K Yarn — Wheel spun, hard twisted 2-ply yarn made out of long or medium stapled retted coir fibre, natural bright to slight reddish brown or bluish grey in colour, usually spun in 10 to 15 score.

3.12 Matting Mats— Matting cut to specific size is called matting mats or matting rugs.

3.13 Matting Rugs — *See* matting mats

3.14 Mesh Matting— A matting of two-treadle weave in construction with the difference that the warp and weft strands positioned at a distance to get mesh effect.

3.15 Multishaft Matting — A matting generally woven on looms mounted “with Dobby or Jacquard shedding mechanisms. This matting incorporates more elaborate patterns and designs which require more than four shaft.

3.16 Quilandy Yarn — Wheel or hand spun, medium twisted 2-ply yarn made out of long or medium stapled retted coir fibre, natural brown to light grey in colour, usually spun in 8 to 12 score.

3.17 Ribbed Matting — A matting of two-treadle weave in construction, which exhibits ribbed effect on the surface. They are comparatively denser than the ordinary plain weave matting.

3.18 Rubber Backing Mattings — Matting specially intended for the purpose of providing rubber backing and to cut to sizes. At the centre of the matting a gap is provided by omitting warp strands.

3.19 Scorage of Yarn — A number indicating fineness or coarseness of coir yarn which is obtained by dividing by 20, the number of strands that could be laid close to each other without over-lapping in a length of 0.914 m (1 yard).

3.20 Special Reed Mattings — A matting which exhibits warp strands in pairs working together, woven on closer reeds to ensure distribution of warp uniformly and without over lapping.

3.21 Three-Treadle Weave — This weave is employed to obtain a thicker and better looking matting than the two-treadle one. This type of weave produces a diagonal or a herringbone effect. As the twill lines are formed on one side only of the fabric, this matting is non reversible. The use of this weave is principally for the manufacture of plain and, solid coloured mattings.

3.22 Two-Treadle Basket Weave — This weave is the same as that of two-treadle plain weave, both warp-wise and weft-wise (vertically and horizontally), but two or more threads or coir yarn work together in the same order. This enables the production of attractive patterns, in both stripe and check (tile). Both sides of the matting have the same appearance and the matting is therefore, reversible.

3.23 Two-Treadle Plain Weave — In this weave, each warp thread gets interlaced alternatively over and under by successive weft thread that is, when the odd ends are up even ends are down and vice versa. Both sides of the matting present the same appearance and the matting is, therefore, reversible.

3.24 Vycome Yarn — Wheel or hand spun, soft or medium twisted, 2-ply yarn made out of retted coir fibre, varying in colour from bright natural to darkish grey, usually spun in 11 to 17 score.

4 GENERAL REQUIREMENTS

4.1 The coir mattings, mourzouks and carpets shall be manufactured from natural, bleached or dyed coir yarn as agreed to between the buyer and the seller. The yarn shall be of two ply.

4.2 The coir mattings, mourzouks and carpets shall be firmly and evenly woven.

4.3 The coir mattings, mourzouks and carpets shall be plain, dyed or stenciled or may have design woven into them.

4.4 The coir, mattings may be made into matting rugs or matting mats. Unless otherwise agreed to between the buyer and the seller, the cut ends of the matting mats or rugs shall be either stitched with suitable cotton thread or bound with jute, rexin or leather webbing (plain, coloured or fancy) or ends doubled back and interlaced in the body of the matting mats or rugs or sealed with suitable edge sealing compound like rubber based adhesive or glue.

4.5 In coir mourzouks and coir carpets (Alleppey Carpets) the weft threads predominates on both sides of the fabric concealing the warp threads completely. The designs are woven by using coloured threads. The number of warp threads in the fabric are comparatively less than the weft.

5 ADDITIONAL REQUIREMENTS FOR ECOMARK (OPTIONAL)

5.1 The product(s) shall meet the requirement specified in this Indian Standard.

5.2 The manufacturer shall produce the consent clearance as per the provisions of *Water (Prevention and Control of Pollution) Act, 1974* and *Air (Prevention and Control of Pollution) Act, 1981* and authorization(s), if required under the rules notified under the *Environment (Protection) Act, 1986* and rules made there under as per *Bureau of Indian Standards Act, 2016* while applying for the Ecomark.

5.3 The product(s) or product packaging(s) may display in brief the criteria based on which the product(s) has been labeled Environment Friendly.

5.4 The material used for product packaging(s) shall be recyclable, reusable or biodegradable.

5.5 The product shall meet the specific requirements as given in Table 1.

6 DIMENSIONS

6.1 The dimensions of coir mattings/mourzouks/carpets shall be as specified in the agreement between the buyer and the seller. The coir mattings are generally supplied in rolls of length not less than 11 m and widths ranging from 300 to 5 000 mm, Coir mourzouks and carpets generally supplied are manufactured in specific sizes to suit the buyer's requirement.

6.2 The preferred dimensions for coir mattings for cricket pitches shall be as follows:

<i>Length</i>	<i>Width</i>
20.12 or 10.06	2.74
Do	2.44
Do	1.83

6.3 Unless otherwise agreed to between the buyer and the seller, the tolerances on dimensions for mattings/mourzouks/carpets shall be as follows:

- a) Coir matting in rolls form
Length + 1 percent
- nil
Width up to 180 cm \pm 13 mm above 180 cm \pm 25 mm
- b) Coir matting rugs, coir carpets, in roll form or in rug size and coir mourzouks
Length \pm 13 mm
Width up to 180 cm \pm 13 cm above 180 cm \pm 25 cm

- c) Coir matting mats and coir carpets in mat size
Length \pm 13 mm
Width \pm 13 mm
- d) Coir matting for cricket pitches
Length \pm 1 percent
Width \pm 1 percent

6.4 The dimensions of mattings/mourzouks/carpets shall be measured as per the procedure given in C-2.

7 MARKING AND LABELLING

7.1 Each matting/mourzouk/carpet shall be legibly and indelibly marked on the back or a label shall be attached with it giving the following particulars or in accordance with the agreement between the buyer and the seller:

- a) Designation,
b) Size or dimensions, and
c) Manufacturer's name, initials or trade-mark or any other identification mark.

7.2 BIS Certification Marking

Table 1 Specific Requirements for Ecomark

(Clause 5.5)

SI No.	Parameters	Requirement	Method of Test
(1)	(2)	(3)	(4)
i)	Residual pesticides (Sum parameter) (ppm) (<i>Max</i>)	1.0	Annex D of IS 15651
ii)	pH of aqueous extract	6-7	Annex H of IS 8391 (Part 1)
iii)	Free and releasable formaldehyde (<i>Max</i>)	300 ppm (For coloured products only) (Total of free and released formaldehyde)	IS 14563 (Parts 1 and 2)
iv)	Extractable heavy metals by artificial acidic sweat (ppm) (<i>Max</i>)		Annex A of IS 15651
	a) Antimony (Sb)	10	
	b) Arsenic (As)	1.0	
	c) Lead (Pb)	1.0	
	d) Cadmium (Cd)	0.1	
	e) Mercury (Hg)	0.1	
	f) Chromium Total (Cr)	2.0	
	g) Cobalt (Co)	4.0	
	h) Copper (Cu)	50.0	
	j) Nickel (Ni)	4.0	
		(For coloured products only)	
v)	Pentachlorophenols (PCP), (ppm) (<i>Max</i>)	0.5	Annex B of IS 15651
		(For coloured products only)	
vi)	Banned aryl amines from azo dyes, (ppm) (<i>Max</i>)	30.0	IS 15570
		(For coloured products only)	

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 there under, and the product(s) may be marked with the Standard Mark.

8 PACKING

8.1 The mattings/mourzouks/carpets shall be suitably packed, as agreed to between the buyer and the seller.

8.2 Each package shall be marked with the following or in accordance with the agreement between the buyer and the seller:

- a) Name of the product;
- b) Gross mass;
- c) Number of pieces packed in the package;
- d) Size No. or dimensions;
- e) Designation;
- f) Criteria for which the product has been labeled as ecomark (optional); and
- g) Name, initials, trade-mark or any other identification mark of the manufacturer.

9 SAMPLING AND CRITERIA FOR CONFORMITY

Unless otherwise agreed to between the buyer and the seller, the sampling plan and criteria for conformity as given in Annex B shall be followed.

10 METHODS OF TESTING AND INSPECTION

10.1 Conditioning of Sample

Unless otherwise agreed to between the buyer and the seller, prior to evaluation, the test sample shall be conditioned in a standard atmosphere as stated in **10.2**, for 48 h.

10.2 Atmospheric Conditions for Testing

Unless otherwise agreed to between the buyer and the seller, all tests shall be carried out in a standard atmosphere at 65 ± 2 percent relative humidity and $27 \pm 2^\circ\text{C}$ temperature (*see* also IS 6359).

10.3 The procedure for testing and inspection of mattings/Mourzouks/carpets shall be as given in Annex C.

ANNEX A

(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
2500 (Part 1) : 1973	Sampling inspection tables: Part 1 Inspection by attributes and by count of defects (<i>first revision</i>)	14563 (Part 1) : 1998	Textiles — Determination of formaldehyde: Part 1 Free formaldehyde
6359: 1971	Method for conditioning textiles	14563 (Part 2) : 1999	Textiles — Determination of formaldehyde: Part 2 Released formaldehyde
651 : 2006	Textiles — Requirements for environmental labelling — Specification	15570 : 2005	Textiles — Method of test — Detection of banned Azo colourants in coloured textiles
8391 (Part 1) : 2019	Rubberized coir sheets for cushioning — Specification: Part 1 Curled (<i>third revision</i>)		

ANNEX B

(Clause 9.1)

SAMPLING AND CRITERIA FOR CONFORMITY**B-1 SCALE OF SAMPLING**

B-1.1 The conformity of a lot to the requirements of this standard shall be determined on the basis of the tests carried out on mattings/mourzouks/ carpets selected from the lot.

B-1.2 Unless otherwise agreed to between the buyer and the seller, select at least 5 percent of the packages in the lot subject to a minimum of two packages.

B-1.3 For evaluating various test requirements of mattings/mourzouks/carpets in the lot, sample at inspection level 3 as per Table 1 of IS 2500 (Part 1) shall be drawn by randomly selecting approximately equal number from the packages sampled as per **B-1.2**,

thereby constituting the sample of size prescribed above.

B-1.4 All the samples selected in **B-1.3** be tested for evaluating:

- a) Construction,
- b) Ends and picks per dm,
- c) mass, g/m², and
- d) dimensions.

B-1.5 The lot shall be considered to be in conformity with the requirements of this standard if the number of defective mattings/mourzouks/carpets in the sample does not exceed the acceptance number 'a' for AQL 2.5 percent as given in Table 2 of IS 2500 (Part 1).

ANNEX C

(Clauses 6.4 and 10.3)

METHODS OF TESTING AND INSPECTION

C-1 DETERMINATION OF ENDS AND PICKS PER DECIMETRE

C-1.1 Ends per Decimetre

Lay one test specimen on a horizontal surface and smoothen it out. Place a scale marked in centimetre along the width of the test specimen. Count the number of ends (normally comprising of one yarn and one space and including as a fraction any portion of such unit) in a distance of one decimetre. Determine similarly the number of ends in one decimetre at two other different places.

Calculate the mean of three values as obtained above which shall be taken as the number of ends per decimetre for the test specimen.

Repeat the test with the remaining test specimens and determine the ends per decimeter for each of the test specimen in accordance with the above procedure.

NOTE — In case it is not possible to count the number of ends in mourzouks, cut the test specimen at one end, pullout weft bands to a distance of about 5 cm and count the protruding warp threads.

C-1.2 Picks per Decimetre

Lay one test specimen on a horizontal surface and smoothen it out. Place a scale graduated as centimetre in a direction perpendicular to the weft. Count the number of picks (normally comprising of one yarn and one space and including as a fraction any portion of

such unit) in a distance of 1 dm. Determine similarly the number of picks in 1dm at two other different places.

Calculate the mean of the three values as obtained above which shall be taken as the number of picks per decimetre for the test specimen.

Repeat the test with the remaining test specimens and determine the picks per decimetre for each of the test specimen in accordance with the above procedure.

C-2 DETERMINATION OF DIMENSIONS

Place the test specimen on a horizontal surface. Measure the length and width from edge to edge (including sealing at the edge) at four places uniformly distributed along the test specimen. Calculate separately the average of length and width so measured.

Repeat the test with the remaining test specimens and determine the average length and width of each test specimen in the test sample.

C-3 DETERMINATION OF MASS

C-3.1 Weight each test specimen accurate up to 10 g. The dimension of which has been determined in accordance with **C-2**. Calculate the mass in grams per square metre of the test specimen from the mass as obtained above and the dimensions as obtained in **C-2**.

*Indian Standard***COIR — MATTINGS, MOURZOUKS AND CARPETS****PART 2 COIR MATTINGS***(First Revision)***1 SCOPE**

1.1 This standard (Part 2) prescribes the requirements of coir mattings of different constructions woven on looms.

1.2 The specific requirements of coir mattings are prescribed in this standard.

1.3 Terminology, general requirements, additional requirements for Ecomark (optional), dimensions, marking and labelling, packing, sampling and criteria for conformity and methods of tests are included in Part 1 of this standard.

2 REFERENCES

The standards listed in Annex A to Part 1 of this standard 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 the standards.

3 SPECIFIC REQUIREMENTS**3.1 Designation**

3.1.1 The designation for two-treadle plain weave, three-treadle and four-treadle weave matting shall be assigned in such a way as to denote the type of the matting by the first letter, the type of the yarn used for the warp by the second letter and the number of treadle denoted by that number.

As for example if the type of the yarn used for the warp is Anjengo or Vycome for two-treadle weave the designation of the matting shall be M2A or M2V. In case of such mattings exclusively woven on power loom the designation for mattings with Anjengo yarn as warp, shall be PM2A.

3.1.2 The designation for two-treadle basket weave shall be assigned in such a way as to denote the type of the matting by the first letter, type of weave by the second letter, type of the warp yarn by the third letter and the number of treadle denoted by that number.

As for example if the type of the yarn used for the warp is Anjengo or Aratory for two-treadle basket weave, the designation of the matting would be M2BA or M2BR. In case of such mattings exclusively woven on powerloom designation for mattings with Anjengo yarn as warp shall be PM2BA,

3.1.3 The designation of mesh matting, multi shaft-matting, special reed matting and rubber backing matting shall be assigned in such a way as to denote the type of the matting by the first two letters and the type of the warp yarn by the third letter,

As for example if the type of the warp yarn used for mesh matting is Anjengo, the designation of the mesh matting shall be MMA.

3.2 Construction and other Requirements

The mattings shall conform to the constructional details and other requirements given in Table 1.

Table 1 Constructional Detail of Coir Mattings*(Clause 3.2)*

Designation	Type of Warp Yarn	Approximate Scorage of Warp Yarn	Ends per dm	Type of Weft Yarn	Picks per dm	Mass kg/m ²
(1)	(2)	(3)	(4)	(5)	(6)	(7)
M2A1	Anjengo	15	33	Vycome/Beach	11	1.50
M2A2	Anjengo	14	31	Vycome/Beach	11	1.55
M2A3	Anjengo	13	29	Vycome/Beach	10	1.62
M2A4	Anjengo	12	27	Vycome/Beach	9	1.70
M2R1	Aratory	15	33	Vycome/Beach	11	1.42

Table 1 (Continued)

Designation	Type of Warp Yarn	Approximate Scorage of Warp Yarn	Ends per dm	Type of Weft Yarn	Picks per dm	Mass kg/m ²
(1)	(2)	(3)	(4)	(5)	(6)	(7)
M2R2	Aratory	14	31	Vycome/Beach	11	1.47
M2R3	Aratory	13	29	Vycome/Beach	10	1.55
M2R4	Aratory	12	27	Vycome/Beach	9	1.62
M2V1	Vycome	15	33	Beach/Vycome	9	1.35
M2V2	Vycome	14/13	30	Beach/Vycome	9	1.42
M2V3	Vycome	12	27	Beach/Vycome	9	1.52
M2V4 (S2M3)	Vycome	11	22	Vycome/Beach	9	1.25
M2V5 (S2M10)	Vycome Thin	-	36	Vycome/Thin	12	1.10
M2B1	Beach	11/10	22	Beach	9	1.30
M2B2	Beach	9	20	Beach	9	1.40
M2Q1 (S2M11)	Quilandy	-	17	Aratory	6	1.85
Two-treadle						
Plain weave						
Power loom matting						
PM2A1 (P2A1)	Anjengo	13	28	Vycome	13	1.700
PM2A2 (P2A5)	Anjengo	12	26	Aratory/vycome	13	1.800
PM2A3 (P2A6)	Anjengo	15/16	42	Anjengo	11	1.700
PM2Q1 (P2A2)	Quilandy/Ashtamudy	10	22	Vycome	10	2.000
PM2Q2 (P2A3)	Quilandy/Ashtamudy	9	16	Vycome	7	1.800
PM2Q3 (P2A4)	Quilandy	9	21	Vycome	17	2.400
Two-Treadle						
Basket Weave						
M2BA1	Anjengo	15	30	Anjengo/Aratory	17	1.72
M2BA2	Anjengo	14	28	Anjengo/Aratory	17	1.80
M2BA3	Anjengo	13	26	Anjengo/Aratory	16	1.82
M2BA4	Anjengo	15	30	Vycome/	17	1.62
M2BA5	Anjengo	14	28	Vycome	17	1.68
M2BA6	Anjengo	13	26	Vycome	16	1.72
M2BA7 (S2BM1)	Anjengo	16	34	Anjengo	17	1.62
M2BA8 (S2BM3)	Anjengo-M	12	25	Anjengo-M	12	2.62
M2BR1	Aratory	15	30	Aratory	17	1.68
M2BR2	Aratory	14	28	Aratory	17	1.72
M2BR3	Aratory	13	26	Aratory	16	1.80
M2BR4	Aratory	15	30	Vycome	17	1.58
M2BR5	Aratory	14	28	Vycome	17	1.62
M2BR6	Aratory	13	26	Vycome	16	1.68
M2BV1	Vycome	14	28	Vycome	16	1.47
M2BV2	Vycome	13	26	Vycome	16	1.52
M2BV3	Vycome	12	24	Vycome	15	1.58
M2BB1	Beach	10	20	Beach	15	1.38
M2BQ1 (S2BM7)	Quilandy	10	20	Quilandy	15	2.80
Two-Treadle						
Basket Weave						
Power loom Matting						

Table 1 (Continued)

Designation	Type of Warp Yarn	Approximate Scorage of Warp Yarn	Ends per dm	Type of Weft Yarn	Picks per dm	Mass kg/m ²
(1)	(2)	(3)	(4)	(5)	(6)	(7)
PM2BA1 (P2BA1)	Anjengo	12	30	Vycome	16	2.000
PM2BA2 (P2BA2)	Anjengo	14	32	Anjengo/Aratory	18	2.200
PM2BA3 (P2BA3)	Anjengo	14	28	Anjengo/Aratory	16	2.000
PM2BA4 (P2BA4)	Anjengo	13	28	Anjengo/, Loose twist	14	1.800
PM2BA5 (P2BA5)	Anjengo	16	32	Anjengo	22	2.000
PM2BA6 (P2BA6)	Anjengo	15	32	Anjengo	21	1.800
PM2BA7 (P2BA8)	Anjengo	15	36	Anjengo (16 score)	18	1.800
PM2BQ1 (P2BA7)	Quilandy	9	10	Anjengo	16	2.100
Three-Treadle Weave						
M3A1	Anjengo	16	35	Vycome/Beach	11	1.58
M3A2	Anjengo	15	33	Vycome/Beach	11	1.62
M3A3	Anjengo	14	31	Vycome/Beach	11	1.68
M3A4	Anjengo	13	29	Vycome/Beach	10	1.75
M3A5	Anjengo	12	27	Vycome/Beach	10	1.82
M3A6 (S3M2)	Anjengo	16	40	Vycome/Alapat	11	2.00
M3A7 (S3M4)	Anjengo	15	31	Vycome/Beach	11	1.52
M3A8 (S3M9)	Anjengo	13 (50 percent) 17 (50 percent)	36	Anjengo	19	1.90
M3R1	Aratory	16	35	Vycome/Beach	11	1.50
M3R2	Aratory	15	33	Vycome/Beach	11	1.55
M3R3	Aratory	14	31	Vycome/Beach	11	1.60
M3R4	Aratory	13	29	Vycome/Beach	10	1.68
M3R5	Aratory	12	27	Vycome/Beach	10	1.75
M3C1	Ashtamudy	11	24	Vycome/Beach	9	2.08
M3V1	Vycome	14	31	Vycome/Beach	10	1.40
M3V2	Vycome	13	29	Vycome/Beach	9	1.45
M3V3	Vycome	12	27	Vycome/Beach	9	1.52
M3B1	Beach	10	22	Beach	9	1.40
Three-Treadle Weave						
Powerloom Matting						
PM3A1 (P3A1)	Anjengo	13	28	Anjengo	14	1.800
PM3A32 (P3A2)	Anjengo	18	42	Anjengo	24	1.850
	(50 Percent) and 2-ply Aloe, thin (50Percent)	(Anjengo)	(18 Score)			
Four-Treadle Weave						
M4A1	Anjengo	15	33	Vycome	13	1.70
M4A2	Anjengo	14	31	Vycome	13	1.75
M4A3	Anjengo	13	29	Vycome	13	1.82
M4A4	Anjengo	12	27	Vycome	13	1.90
M4A5 (S4M4)	Anjengo	13	32	Vycome	15	2.13
M3A6 (S4M11)	Anjengo	14	31	Vycome/Alapat	14	1.82
M4Q1 (S4M17)	Quilandy	9	20	Quilandy	9	2.62

Table 1 (Continued)

Designation	Type of Warp Yarn	Approximate Scorage of Warp Yarn	Ends per dm	Type of Weft Yarn	Picks per dm	Mass kg/m ²
(1)	(2)	(3)	(4)	(5)	(6)	(7)
M4V4 (S4M22)	Vycome, Thin	20	40	Vycome	17	1.35
M4Y1 (S4M13)	Beyepore	6	14	Beyepore	7	2.80
M4R1	Aratory	15	33	Vycome	13	1.62
M4R2	Aratory	14	31	Vycome	13	1.68
M4R3	Aratory	13	29	Vycome	13	1.75
M4R4	Aratory	12	27	Vycome	13	1.82
M4V1	Vycome	14	31	Vycome	12	1.47
M4V2	Vycome	13	29	Vycome	12	1.55
M4V3	Vycome	12	27	Vycome	12	1.62
Four-Treadle Weave						
Powerloom Matting						
PM4A1 (P4A1)	Anjengo	13	30	Vycome	16	1.950
PM4A2 (P4A2)	Anjengo	14	32	Vycome /Aratory	17	2.200
PM4A3 (P4A3)	Anjengo	14	28	Vycome /Aratory	16	2.000
PM4A4 (P4A4)	Anjengo	13	26	Vycome	17	1.960
	M/Manga- dan-K (2/3) and Sisal (1/3)					
PM4A5 (P4A5)	Anjengo M/Manga- dan-K (2/3) and Sisal (1/3)	13	25	Vycome	16	1.800
PM4A6 (P4A6)	Anjengo	13	29	Vycome	12	2.200
PM4A7 (P4A7)	Anjengo	12	28	Vycome	14	1.800
PM4A8 (P4A8)	Anjengo	16	32	Anjengo	22	2.000
PM4A9 (P4A9)	Anjengo	15	32	Anjengo	21	1.800
PM4A10 (P4A10)	Anjengo	12	27	Vycome	14	2.200
PM4A11 (P4A12)	Anjengo	11	28	Aratory/Vycome	15	2.100
PM4A12 (P4A13)	Anjengo	13	11	Aratory	13	2.100
	or	or				
	Quilandy	9				
PM4Q1 (P4A11)	Quilandy	9	10	Anjengo	16	2.100
Mesh Matting						
MMA1 (H2M1)	Anjengo	14	9	Vycome	8	0.650
MMA2 (H2M4)	Anjengo	12	19	Aratory	11	1.400
NOTE — In this matting the warp threads (ends) are arranged in group of three strands						
MMA3 (H2M8)	Anjengo	12	11	Aratory	7	0.700
MMA4 (H2M9)	Anjengo	11	13	Aratory	7	0.900
MMA5 (H2M10)	Anjengo	11	18	Anjengo	9	1.300
MMR1 (H2M3)	Aratory	15	14	Aratory	14	0.875
NOTE — In this matting the warp and weft threads are arranged in pairs.						

Table 1 (Concluded)

Designation	Type of Warp Yarn	Approximate Scorage of Warp Yarn	Ends per dm	Type of Weft Yarn	Picks per dm	Mass kg/m ²
(1)	(2)	(3)	(4)	(5)	(6)	(7)
MMV1 (H2M5)	Vycome	13	9	Vycome	8	0.740
MMV2 (H2M6)	Vycome	12	4.6	Vycome	4	0.400
MMB1 (H2M2)	Beach	9	8	Beach	7	0.700
MMY1 (H2M7)	Beyepore	-	4	Beyepore	6	1.250
Multi Shaft Matting						
MSA1 (SOM1)	Anjengo	12	30	Vycome	14	2.000
MSA2 (SOM2)	Anjengo	14	26	Anjengo	18	2.000
MSA3 (SOM3)	Anjengo	16	35	Anjengo/Aloe/Sisal	12	1.700
MSA4 (SOM5)	Anjengo	15	21	Vycome	26	1.320
MSQ1 (SOM4)	Quilandy	8	20	Quilandy	15	3.200
MSQ2 (SOM6)	Quilandy	9	20	Quilandy	8	2.620
MSQ3 (SOM7)	Quilandy	9	20	Quilandy	18	4.000
Multi Shaft Powerloom Matting						
PMSA1 (POA1)	Anjengo	15	32	Vycome	18	2.200
PMSA2 (POA2)	Anjengo	15	32	Vycome	13	2.100
Rubber Backing Matting						
RB2R1 (S2RB1)	Aratory	15/16	24/25	Vycome	12	1.290
NOTE — In this rubber backing matting, two warp strands are omitted at the centre						
SR4A1 SR4M2)	Anjengo	14	29	Aratory	16	1.750
SR4R1 SR4M1)	Aratory	15	26	Vycome	18	1.400
SR4R2 SR4M3)	Aratory	13	26	Vycome	16	1.680
Tolerance -	-	± 1	± 2	-	- 5 percent (up to width 275 cm) - 2 percent (above width 275 cm) Special tolerance for Powerloom matting : - 5%	+7.5 - 5 percent
Method of Test			C-1.1		C-1.2	C-3
[see IS 12501 (Part 1) : 2020]						

NOTES:

1 The designations indicated within bracket are popularly known as 'Export designations'.

2 For chemically bleached coir matting, the tolerance for mass shall be $\begin{matrix} +5 \\ -10 \end{matrix}$ percent in place of the existing tolerance. For matting made partially with bleached coir yarn, the special tolerance shall be in proportion to the quantity of bleached yarn used in relation to the total mass of the matting.

3 For designation M2BQ1 (S2BM7) which is made as rugs with ends tucked in, an extra mass of 5 g/dm calculated on total length of the tucked in portion shall be added to the permissible limits of the mass specified.

4. An additional minus tolerance of 0.75 percent on the mass of the mattings/carpets shall be provided for every gap of 1 cm width running, throughout the length of the matting/carpet as a part of the design.

*Indian Standard***COIR — MATTINGS, MOURZOUKS AND CARPETS****PART 3 RIBBED COIR MATTINGS***(First Revision)***1 SCOPE**

1.1 This standard (Part 3) prescribes the requirements of ribbed coir mattings of different construction woven on looms.

1.2 The specific requirements of ribbed coir mattings are prescribed in this standard.

1.3 Terminology, general requirements, dimensions, marking and labelling, packing, sampling and criteria for conformity and methods of tests are included in Part I of this standard.

2 REFERENCES

The standards listed in Annex A to Part 1 of this standard 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 the standards.

3 SPECIFIC REQUIREMENTS**3.1 Designation**

The designation of ribbed coir matting shall be assigned in such a way as to denote the type of matting by the first letter and the type of yarn used for the slack warp by the second letter.

As for example, if the type of the yarns used for the slack warp is Anjengo or Vycome, the designation of the ribbed matting shall be KA or KV.

In case of ribbed coir matting exclusively woven on powerloom, the above designation shall be PKA or PKV.

3.2 Construction and Other Requirements

The ribbed coir mattings shall conform to the constructional details and other requirements given in Table 1.

Table 1 Constructional Details of Ribbed Coir Mattings*(Clause 3.2)*

Designation	Warp						Weft		Mass kg/m ²
	Slack		Tight		Ends per dm		Type of Yarn	Picks per dm	
	Type of Yarn	Approx scoreage	Type of yarn	Approx scoreage	Slack	Tight			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
KA1	Anjengo	13	Vycome	14	8	16	Vycome	16	2.150
KA2	Anjengo	14	Vycome	13	9	18	Vycome	20	2.750
KA3	Anjengo	15	Vycome	14	9	9	Vycome	16	2.150
KA4	Anjengo	14	Vycome	13	12	12	Vycome	24	2.750
KA5 (SK5)	Anjengo	14	Vycome	13	18	9	Vycome	20	3.350
KA6	Anjengo	14	Vycome	13	18	9	Vycome	24	3.650
KA7 (SK1)	Anjengo	15	Anjengo	17	20	10	Aratory	20	2.350
KA8 (SK19)	Anjengo	15	Anjengo	16	9	18	Anjengo	22	2.200

Table 1 (Continued)

Designation	Warp						Weft		Mass kg/m ²
	Slack		Tight		Ends per dm		Type of Yarn	Picks per dm	
	Type of Yarn	Approx scoreage	Type of yarn	Approx scoreage	Slack	Tight			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
KA9 (SK26)	Anjengo	13	Anjengo	13	18	9	Quilandy	16	3.200
KC1 (SK9)	Ashtamudy	8	Vycome	12	8	16	Vycome	20	3.050
KR1	Aratory	15	Vycome	14	8	16	Vycome	16	1.850
KR2 (SK10)	Aratory	12	Vycome	13	9	18	Vycome	20	2.450
KR3	Aratory	15	Vycome	14	9	9	Vycome	16	1.850
KR4	Aratory	14	Vycome	13	12	12	Vycome	24	2.450
KR5	Aratory	16	Vycome	14	18	9	Vycome	17	2.750
KR6	Aratory	15	Vycome	14	18	9	Vycome	20	3.350
KR7 (SK4)	Aratory	13	Vycome	13	16	8	Fine		
							Unsoaked	10	3.620
KR8 (SK8)	Aratory	12	Vycome	14	16	8	Vycome	16	2.140
KV1 (SK7)	Vycome	11	Vycome	13	8	16	Vycome	16	1.830
KV2 (SK3)	Vycome	11	Vycome	13	9	18	Vycome	20	2.440
KV3	Vycome	14	Vycome	14	9	9	Vycome	13	1.830
KV4 (SK6)	Vycome	12	Vycome	12	11	11	Vycome/ Beach	24	2.300
KV5	Vycome	13	Vycome	13	18	9	Vycome	17	3.050
KV6	Vycome	13	Vycome	12	18	9	Vycome	20	3.620
KV7 (SK2)	Vycome	12	Sisal	-	20	10	Vycome	16	2.400
KV8 (SK18)	Vycome	12	Anjengo	14	20	10	Anjengo	18	3.000
KV9 (SK28)	Thin vycome	-	Thin aratory	-	22	11	Thin Vycome	22	1.800
KQ1 (SK25)	Quilandy	9	Anjengo	14	14	7	Beypore	10	4.100
Power-Loom Matting									
Ribbed									
PKA1 (PKM2)	Anjengo-M	13	Anjengo-M	14	13	13	Vycome	13	2.100
PKA2 (PKM3)	Anjengo	14	Anjengo	15	18	9	Anjengo/ Aratory	16	2.100
PKA3 (PKM5)	Anjengo	13	Anjengo	14	15	15	Beach	16	2.200
PKA5 (PKM6)	Anjengo	14	Sisal	600	18	9	Sisal	18	2.300
					m/kg				
					(see Note 2)				
PKA5 (PKM8)	Anjengo	16	Sisal	-	22	11	Sisal	18	2.000
PKA6 (PKM9)	Anjengo	13	Anjengo	12	18	9	Aratory	18	2.900
PKA7 (PKM10)	Anjengo	15	Anjengo	17	22	11	Aratory	18	2.100
PKA8 (PKM11)	Anjengo	15	Aloe, Thin	-	22	11	Aloe, Thin	18	2.000
PKA9 (PKM12)	Anjengo	18	2 Ply Aloe Thin	-	22	22	2 Ply Aloe Thin	36	1.850

Table 1 (Concluded)

Designation	Warp						Weft		Mass kg/m ²
	Slack		Tight		Ends per dm		Type of Yarn	Picks per dm	
	Type of Yarn	Approx scorage	Type of yarn	Approx scorage	Slack	Tight			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
PKA10 (PKM13)	Anjengo-M	12	2 Ply Sisal	330	20	10	Sisal	20	3.200
				m/kg (see Note 2)			330 m/kg (see Note 2)		
PKA11 (PKM14)	Anjengo	18	5 Ply Jute	-	22	22	3 Ply Jute	36	1.850
PKK1 (PKM1)	Mangadan-K	12	Mangadan-K	13	10	10	Vycome	14	2.000
PKK2 (PKM4)	Mangadan-K	12	Mangadan-K	13	12	12	Aratory	13	1.800
PKV1 (PKM7)	Vycome	12	Sisal	690	18	9	Vycome	18	2.400
				m/kg (see Note 2)					
Tolerance -	-	± 1	-	± 1	+ 2	+2	- 5 percent	+7.5	
					-1	-1	(up to width 275 cm)	- 5	
							- 2 percent (width above 275 cm)		
Method of test						C-1.1	C-1.1	C-1.2	C-3
[see IS 12503 (Part 1) : 2020]									

NOTES:

- 1 The designations indicated within bracket are popularly known 'Export designations'.
- 2 For sisal yarn, instead of scorage value, the runnage value (m/kg) has been indicated.

Indian Standard

COIR — MATTINGS, MOURZOUKS AND CARPETS

PART 4 COIR MOURZOUKS

(First Revision)

1 SCOPE

1.1 This standard (Part 4) prescribes the requirements of coir mourzouks of different constructions woven on looms.

1.2 The specific requirements of coir mourzouks are prescribed in this standard,

1.3 Terminology, general requirements, dimensions, marking and labelling, sampling and criteria for conformity and methods of tests are included in the Part 1 of this standard.

2 REFERENCES

The standards listed in Annex A to Part 1 of this standard 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 the standards.

3 SPECIFIC REQUIREMENTS

3.1 Designation

The designation of coir mourzouks shall be assigned in such a way as to denote the type of the mourzouk by the first two letters, type of the warp yarn by the third letter and the type of the weft yarn by the fourth letter, As for example if the type of warp yarn is Vycome and the type of the weft yarn is Aratory, the designation of the mourzouk shall be BMVR.

3.2 Construction and Other Requirements

The mourzouk shall conform to the constructional details and other requirements given in Table 1

Table 1 Construction Details of Coir Mourzouk

(Clause 3.2)

Designation	Type of Warp Yarn	Approx Scorage of Warp Yarn	Ends per dm <i>Min</i>	Type of Weft Yarn	Approx Scorage of weft Yarn	Picks per dm <i>Min</i>	Mass kg/m ²
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BMEL	Aloe Thin	15/16	10	Alapat	-	45	2.15
BMER (BMAR)	Aloe Thin	15/16	10	Aratory	13/14	45	2.05
BMEA (BMAN)	Aloe Thin	15/16	10	Anjengo	15	47	1.90
BMVA (BMVN)	Vycome	13/14	10	Anjengo	13	38	2.05
BMVL	Vycome	13/14	10	Alapat	-	38	2.05
BMVR	Vycome	13/14	10	Aratory	12/13	42	1.90
BMJL	Jute 5 ply	-	10	Alapat	-	40	2.35
BMEV	Aloe Thin	15/16	10	Vycome	13/14	52	2.35
BMAQ (SMNQ)	Anjengo	14	5	Quilandy	9	28	2.70
BMVP	Vycome	13/14	5	Roping	5/6	15/16	3.95
Tolerance -	-	-	-	-	-	-	+7.5 & - 5 percent
Method of Test				C-1.1		C-1.2	C-3
[see IS 12503 (Part 1) : 2020]							

NOTE — The designations indicated within bracket are popularly known export designations.

*Indian Standard***COIR — MATTINGS, MOURZOUKS AND CARPETS****PART 5 COIR CARPETS***(First Revision)***1 SCOPE**

1.1 This standard (Part 5) prescribes the requirements of coir carpets made on *looms*.

1.2 The specific requirements of coir carpets are prescribed in this standard.

1.3 Terminology, general requirements, dimensions, marking and labelling, packing, sampling and criteria for conformity and methods of tests are included in the Part 1 of this standard.

2 REFERENCES

The standards listed in Annex A of Part 1 of this standard 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 the standards.

3 SPECIFIC REQUIREMENTS**3.1 Designation**

The designation of coir carpet shall be assigned in such a way as to denote the type of carpet by the first and the second letter, type of the warp yarn by the third letter and the type of the weft yarn by the fourth letter.

As for example if the type of the warp yarn is Vycome and the type of the weft yarn is Aratory the designation of the carpet would be BCVR.

3.2 Construction and Other Requirements

The mats shall conform to the constructional details and other requirements given in Table 1.

Table 1 Constructional Detail of Coir Carpets*(Clause 3.2)*

Designation	Type of Warp Yarn	Approx Scorage of Warp Yarn	Ends per dm <i>Min</i>	Type of Weft Yarn	Approx Scorage of weft Yarn	Picks per dm <i>Min</i>	Mass kg/m ²
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BCBC (BCSD)	Beach	7/8	6	Ashuamudy	8/9	29	3.05
BCQQ (BCSQ1)	Quilandy	-	4	Quilandy	-	48	5.20
BCVR (BCSR)	Vycome	13/14	12	Aratory	15/16	57	2.35
BCVR1 (BCSR1)	Vycome	13/14	12	Aratory	13/14	52	2.45
BCVV (BCSR2)	Vycome	13/14	12	Vycome	12/13	50	2.15
Tolerance -	-	-	-	-	-	-	+7.5 - 5 percent
Method of Test				C-1.1		C-1.2	C-3

[see IS 12503 (Part 1) : 2020]

NOTES:

1 The designations indicated within bracket are popularly known export designations.

*Indian Standard***COIR — MATTINGS, MOURZOUKS AND CARPETS****PART 6 COIR MATTINGS FOR CRICKET PITCHES***(First Revision)***1 SCOPE**

1.1 This standard (Part 6) prescribes the requirements of coir mattings for cricket pitches.

1.2 The specific requirements of coir mattings for cricket pitches are prescribed in this standard.

1.3 Terminology, general requirements, dimensions, marking and labelling, packing, sampling and criteria for conformity and methods of tests are included in the Part 1 of this standard.

2 REFERENCES

The standards listed in Annex A to Part 1 of this standard 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 the standards.

3 SPECIFIC REQUIREMENTS**3.1 Designation**

The designation of coir mattings for cricket pitches shall be assigned in such a way as to denote the type of matting by the first letter and the type of the warp yarn by the second letter and the number of treadle shall be denoted by that number.

As for example if the type of the warp yarn is Anjengo or Aratory the designation of the matting for three treadle weave shall be C3A or C3R.

3.2 The matting shall be firmly and evenly woven from selected yarn of uniform scorage with least number of splicing. Whenever splicing is done, it shall be so even as to avoid non-uniformity in diameter.

3.3 Construction and Other Requirements

The mattings shall conform to the constructional details and other requirements given in Table 1.

Table 1 Requirement for Coir Matting for Cricket Pitches*(Clause 3.3)*

Designation	Type of Warp Yarn	Approximate Scorage of Warp Yarn	Ends per dm	Type of Weft Yarn	Picks per dm	Mass kg/m ²
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Three-Treadle Weave						
C3A1	Anjengo	14	31	Vycome	11	1.75
C3A2	Anjengo	13	29	Vycome	11	1.80
C3R1	Aratory	15	33	Vycome	11	1.65
C3R2	Aratory	14	31	Vycome	11	1.70
C3V1	Vycome	13	29	Vycome	9	1.50
C3V2	Vycome	12	27	Vycome	9	1.55
C3C1	Ashtamudy	11	25	Vycome	9	2.15
Four-Treadle Weave						
C4A1	Anjengo	15	33	Vycome	13	1.75
C4A2	Anjengo	14	31	Vycome	13	1.80
C4R1	Aratory	15	33	Vycome	13	1.70

IS 12503 (Part 1 to 6) : 2020

Designation	Type of Warp Yarn	Approximate Scorage of Warp Yarn	Ends per dm	Type of Weft Yarn	Picks per dm	Mass kg/m²
(1)	(2)	(3)	(4)	(5)	(6)	(7)
C4R2	Aratory	14	31	Vycome	13	1.75
C4V1	Vycome	13	29	Vycome	12	1.60
Tolerance -	-	-	-	-	-	+7.5
						- 5 percent
Method of test			C-1.1		C-1.2	C-3
[see IS 12503 (Part 1) : 2020]						

ANNEX D

(Foreword)

COMMITTEE COMPOSITION

Coir and Coir Products Sectional Committee, TXD 25

<i>Organization</i>	<i>Representative(s)</i>
Central Coir Research Institute, Kalavoor	DR ANITA DAS RAVINDRANATH (Chairman) SMT SUMI SEBASTIAN (<i>Alternate</i>)
Coir Pith and Allied Products Manufacturers and Exporters Association, Coimbatore	PRESIDENT SECRETARY (<i>Alternate</i>)
All India Rubberized Coir Products Manufacturers Association, Tirunelveli	SHRI SUNDARESAN SHRI MATHEW GEORGE (<i>Alternate</i>)
Central Institute of Coir Technology, Bengaluru	JOINT DIRECTOR SENIOR SCIENTIFIC OFFICER (<i>Alternate</i>)
Coconut Development Board, Ernakulam	SHRI SUGATA GHOSH DR K. MURALIDHARAN (<i>Alternate</i>)
Coir Board, Kochi	SECRETARY JOINT DIRECTOR (<i>Alternate</i>)
Coir Mats and Mattings Association,	SHRI V. A. JOEPH SHRI PAVITHRAN (<i>Alternate</i>)
Coir on Foam Products, Coimbatore	SHRI HARIRAJAN SHRI PHILIP VARGHESE (<i>Alternate</i>)
Coir Shippers' Council, Cherthala	SHRI K. S. SANJEEV SHRI SAJAN B. NAIR (<i>Alternate</i>)
Federation of Indian Coir Exporters' Associations, Alleppey	SHRI JOSPAUL MATHEW SHRI SAJAN B. NAIR (<i>Alternate</i>)
Hindustan Coir, Coir Board Complex Alappuzha	WEAVING MASTER SENIOR SCIENTIFIC OFFICER (<i>Alternate</i>)
Karnataka State Coir Development Corporation Ltd, Bangalore	SHRI G. KUMARASWAMY SHRI K. R. KUMARASWAMY (<i>Alternate</i>)
Kerala Organic Manure and Fertilizer	SHRI G. RAJESH
Kerala State Coir Corporation Ltd, Alappuzha	SHRI G. SREEKUMAR SHRI. N. SUNURAJ (<i>Alternate</i>)
Kerala State Small Scale Coir Manufacturer's Federation, Alappuzha	PRESIDENT SECRETARY (<i>Alternate</i>)
Kerala State Coir Marketing Federation	SHRI SURESH KUMAR
Kurlon Enterprises Limited, Bangalore	SHRI NARENDRA KUDVA SHRI P. ANIL (<i>Alternate</i>)
M M Rubber & Co, Chennai	SHRI JOSEPH CHERIYAN
National Coir Research & Management Institute (NCRMI), Thiruvanthapuram	DR K. R. ANIL SHRI C. ABHISHEK (<i>Alternate</i>)
National Coir Training & Design Centre, Alappuzha	ASSISTANT DIRECTOR ALAPPUZHA REGIONAL OFFICER (<i>Alternate</i>)
Natural Green Tech (P) Ltd, Bengaluru	SHRI TOMMY MATHEW SHRI ABHISHEK THOMAS (<i>Alternate</i>)
Orissa Co operative Coir Corporation Ltd, Bhubaneshwar	MANAGING DIRECTOR GENERAL MANAGER (<i>Alternate</i>)

IS 12503 (Part 1 to 6) : 2020

<i>Organization</i>	<i>Representative(s)</i>
Rubber Board, Kottayam	DR J. THOMAS DR JAMES JACOB (<i>Alternate</i>)
Shaa Pith Media Co, Coimbatore	SHRI S. PRABHU SHRI RAMESH (<i>Alternate</i>)
Sivanthi Joe Coirs, Tuticorin	SHRI DUNSTEN JOSEPH SHRI K. SIVAKAR (<i>Alternate</i>)
Tamil Nadu Coir Cooperative Federation, Chennai	MANAGING DIRECTOR GENERAL MANAGER (<i>Alternate</i>)
Venugopal Fibre Industries, Pattukottai	SHRI R. B. SHYAM SUNDER
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

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act, 2016* to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publications), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc No.: TXD 25 (14976).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402

Website: www.bis.gov.in

Regional Offices:

	Telephones
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	{ 2323 7617 2323 3841
Eastern : 1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi KOLKATA 700054	{ 2337 8499, 2337 8561 2337 8626, 2337 9120
Northern : Plot No. 4-A, Sector 27-B, Madhya Marg CHANDIGARH 160019	{ 265 0206 265 0290
Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113	{ 2254 1216, 2254 1442 2254 2519, 2254 2315
Western : Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	{ 2832 9295, 2832 7858 2832 7891, 2832 7892

Branches : AHMEDABAD. BENGALURU. BHOPAL. BHUBANESHWAR. COIMBATORE.
DEHRADUN. DURGAPUR. FARIDABAD. GHAZIABAD. GUWAHATI.
HYDERABAD. JAIPUR. JAMMU. JAMSHEDPUR. KOCHI. LUCKNOW.
NAGPUR. PARWANOO. PATNA. PUNE. RAIPUR. RAJKOT. VISAKHAPATNAM.

Published by BIS, New Delhi