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**BUREAU OF INDIAN STANDARDS**

**MINUTES**

|  |  |
| --- | --- |
| **Technical Textiles for Agrotech Applications Sectional Committee, TXD 35** | **21st Meeting** |

|  |  |  |
| --- | --- | --- |
| **Date/Day** | **Time** | **Venue** |
| 03 May 2024  (Friday) | 1100h | Through Video Conferencing |

**ATTENDEES:**

|  |  |  |
| --- | --- | --- |
|  | Dr. Manisha Mathur (Chairperson) | The Synthetic and Art Silk Mills Research Association, Mumbai |
|  | Smt A Sudam | -do- |
|  | Shri Premnath Surwase | -do- |
|  | Shri Amit Rana | Azuka Synthetics LLP, Panchkula |
|  | Shri Arun | -do- |
|  | Dr. Swapan Kumar Ghosh | Department of Jute and Fibre Technology, University of Kolkata, Kolkata |
|  | Dr. Vijay Ramakrishnan | Garware Technical Fibres Limited, Pune |
|  | Shri Sachin P Kulkarni | -do- |
|  | Shri Rajendra Ghade | -do- |
|  | Dr. Pankaj Sharma | ICAR-National Institute of Biotic Stress Management |
|  | Dr. Surajit Sengupta | ICAR - National Institute of Natural Fibre Engineering and Technology, Kolkata |
|  | Dr. Manoj Khanna | Indian Agricultural Research Institute Library, New Delhi |
|  | Dr. Anup Rakshit | Indian Technical Textiles Association, Mumbai |
|  | Shri Kamlesh Dhoot | Lamifabs and Papers Private Limited, Aurangabad |
|  | Shri Kamal kishore | -do- |
|  | Shri K K Kaushal | National Committee on Precision Agriculture and Horticulture, New Delhi |
|  | Ms. Asuna Mukherjee | Office of the Jute Commissioner, Kolkata |
|  | Shri Sivakumar S. | Office of the Textile Commissioner, Mumbai |
|  | Shri N. K. Singh | -do- |
|  | Shri Mavji Savani | Rishi Techtex Limited, Daman |
|  | Shri Anish | Shri Ambica Polymer Private Limited, Ahmedabad |
|  | Shri R Chandran | Textiles Committee, Mumbai |
|  | Shri Vikesh Kumar Gupta | V.K. Packwell Private Limited, Kanpur |
|  | Shri Rahul Soni | -do- |
|  | Shri Sachchidanand Tiwari | -do- |
|  | Shri Rajiv Bansal | Centenary Geotex Private Limited, Ahemdabad |
|  | Shri Raghav Bansal | Mortechfab |

**BIS DIRECTORATE GENERAL:**

|  |  |  |
| --- | --- | --- |
| 28 | Shri J. K. Gupta | Scientist E & Head Textiles |
| 29 | Shri Gourav Mishra | Scientist-B/Assistant Director (Textiles)  & Member Secretary TXD 35 |
| 30 | Shri Tanishq Awasthi | Scientist B/Assistant Director (Textiles) |
| 31 | Mr. Gopal Tripathi | Executive Assistant (Textiles) |

**Item 0 WELCOME AND INTRODUCTORY REMARKS BY THE CHAIRMAN**

**0.1** Dr. Manisha Mathur, Chairperson TXD 35, welcomed all the members present in the meeting. He further requested the committee members to actively participate in the meeting.

* 1. Shri J K Gupta, Head Textiles, welcomed the chairperson and all the members present in the meeting and requested for their precise inputs on the agenda items.

**Item 1 CONFIRMATION OF THE MINUTES OF THE PREVIOUS MEETING**

**1.1** In view of no comments received, the committee **CONFIRMED** the minutes of the 20th meeting of the committee held on 10 November 2023 circulated vide BIS DG letter No. TXD 35/A2.20 dated 28th November 2023.

# **Item 2 COMPOSITION AND SCOPE OF TXD 35**

**2.1** The committee scrutinized the present scope and composition of TXD 35 as given in **Annex 1** to the Agendaand DECIDED as under:

1. The Department of Jute and Fibre Technology, Institute of Jute Technology, Kolkata, will be represented by Dr. A K Singha as an alternate member.
2. The Textiles Committee, Mumbai, will be represented by Shri J Parmeshwaran as an alternate member.
3. The committee decided to co-opt ICAR-NIBSM on TXD 35 and will be represented by Dr. Pankaj Sharma as a principle member.
4. M/s VK Packwell Pvt. Ltd. will be represented by Shri Sachidanand Tiwari as an alternate member in place of Shri Sanjay Saxena.

**Item 3 ISSUES ARISING OUT OF THE PREVIOUS MEETING**

**3.1** The Committee **NOTED** the summary of actions taken on the various decisions of the 20th meeting as given in **Annex 2** to the agenda.

**Item 4 COMMENTS RECEIVED ON PUBLISHED INDIAN STANDARDS**

**4.1** The committee scrutinized the comments along with the test report received from M/s Shri Ambica Polymer Private Ltd., M/s Centenary Geotex Pvt. Ltd., M/s Texel Industries Ltd., and M/s Macfil Global Private Limited on IS 16202:2014 as given in **Annex 3-7** to the agenda. The committee also scrutinized the comments received from M/s Shri Ambica Polymer Private Ltd. regarding the finalized amendment during the 19th committee meeting of TXD 35. After detailed deliberations, the committee decided to finalize the following amendment:

1. (*Page* 1, *clause* **4.1**, *line* 3) — Substitute the following for the existing:

The linear density of polypropylene tape shall be either 550 denier for warp and 1000 denier for weft or 450 denier for warp and 1000 denier for weft.

1. (*Page* 1, *clause* **4.1**, *para* 1) — Insert the following sentence at the end:

The denier of PP tape used in the manufacture of woven ground cover shall be subjected to the following tolerances:

a) ± 10 percent on individual value, and

b) ± 5 percent on average.

1. (*Page* 1, *clause* **4.2**, *para* 1) — Substitute the following for the existing paragraph:

The ground cover shall be woven with plain weave and a sett of either 80 ends/dm and 40 picks/dm or a sett of 96 ends/dm and 40 picks/dm. The tolerance on ends/dm and picks/dm shall be ±2.

NOTE —The combination of sett and denier selected for woven ground cover shall meet the requirement of GSM (g/m2) specified in Table 1.

1. (*Page* 1, *clause* **5.2**) — Delete the entry for tolerance on Mass (g/m2).
2. [*Page* 2, *Table* 1, *Sl No.* (ii), (iii) (iv) *and* (vi*)*] — Substitute the following for the existing:

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl No.** | **Characteristic(s)** | **Requirement(s)** | **Method of Test,**  **Ref to** |
| (1) | (2) | (3) | (4) |
| ii) | Tensile strength (grab method, 200 mm \* 100 mm, 25 mm gauge width), kgf, *Min*  a) Warp way  b) Weft way | 65  35 | IS 1969 (Part 2) |
| iii) | Trapezoid tear strength, kgf, *Min*  a) Warp way  b) Weft way | 30  18 | IS 14293 |
| iv) | Air permeability, mm/s, *Min* | 150 | IS 11056 |
| vi) | UV accelerated exposure testing, percent strength retained, *Min*:  a) Warp way  b) Weft way | 70  70 | Annex C |

1. (*Page* 5, *Clause* C-**3.4**) — Substitute the following for the existing formula:

Percent retention of original breaking strength = × 100

1. (*Page* 5, *Annex* C) — Insert the following Annex after Annex C:

**ANNEX D**

(*Clauses* 4.1)

**METHOD OF TEST FOR MEASUREMENT OF LINEAR DENSITY (DENIER) OF TAPE**

**D-1 PRINCIPLE**

The linear density is determined from the mass of a specified length of tape and expressed in denier or tex. The specimen is first laid straight free from any twist and wrinkles and then the length is measured. The specimen is then weighed, and the mass is used in calculating the linear density (denier) of the specimen.

**D-2 APPARATUS**

**D-2.1 Digital Balance with Pan**

Digital balance with sample holding pan, capable of weighing test specimen to an accuracy of 1 mg.

**D-2.2 Length Measuring Scale**

Metallic ruler or a suitable length measuring instrument, graduated in millimetres, and capable of measuring dimensions up to 10 m with an accuracy of 1 mm.

**D-3 PREPARATION OF TEST SPECIMENS**

Select at least five sample tape packages, discard the initial few metres of tape from the sample package. From each tape package, draw enough length of tape specimen and keep on a flat horizontal table with markings at both ends, having specified dimension between the two marks, preferably 9 m for denier and 10 m for tex measurement. Render the tape yarn flat on a table and free from any twist or wrinkles. Measure and cut the tape specimen between the two marks. Measure at least 5 tape specimens from each package.

**D-4 TEST PROCEDURE**

For determination of mass of the test specimen (M), take at least 9 m length of tape specimen (L) for denier and 10 m length of tape specimen (L) tex measurement. Measure the specimen length to an accuracy of 1 mm and correspondingly weigh each test specimen correct to 1 mg.

**D-5 CALCULATIONS**

Calculate the linear density for each test specimen by one of the following formulae;

1. Denier =
2. Tex =

Where,

M = Mass of the test specimen in grams; and

L = length of test specimen in metres.

**D-6 TEST RESULTS**

Calculate denier for at least 5 samples from each package and calculate the average for each individual package. A tolerance of ± 10 percent on the individual value (25 values) and ± 5 on average (5 values) for each package shall be permissible.’

1. (*Page* 6, *Annex* D, *Heading*) — Substitute ‘Annex E’ *for* ‘Annex D’.
2. [*Foreword*, *para* 5] —Substitute the following for the existing.

The composition of the committee responsible for the formulation of this standard is given in Annex E.

The committee further DECIDED to waive off the wide circulation of the above amendment as per the provisions laid down under Rule 22(4) of BIS Rules 2018 notified vide GSR 584(E) dated 25 June 2018 as the matter is urgent and amendments be held to have been FINALIZED for publication. BIS may carry out the editorial changes, if any.

**4.2** The committee SCRUTINIZED the comments received from M/s Garware Technical Fibres Pvt Ltd, Pune, as given in **Annex 8** to the agenda on **IS 16008: 2016 (Part 2)** Agrotextiles — Shade Nets for Agricultural and Horticultural Purposesandafter detailed deliberations, the committeeDECIDED to constitute a panel for deliberating upon the need for inclusion of a new variety of 95 GSM in IS 16008:2016 (Part 2) and to also explore the possibility of incorporating all other prominent varieties of shade nets, if any, based on GSM and to diversify the scope of the standard to include all other possible commercial application uses. The committee further requested M/s Garware Technical Fibres Pvt Ltd, Pune to provide detailed justification along with supporting test reports from independent laboratories and to provide data/inputs to cover all other prominent varieties of shade nets.

The composition of the panel is given below:

1. Smt A Sudam *Convener*

SASMIRA, Mumbai

1. Dr. Manoj Khanna Member

Indian Agricultural Research Institute Library, New Delhi

1. Representative from M/s Garware technical fibres limited, Pune Member
2. Representative from M/s Rishi Techtex Limited,Mumbai Member
3. Representative from CIPET, Bhopal Member
4. Shri Gourav Mishra, BIS, New Delhi Member Secretary

The panel may co-opt any other member if required by the panel.

The committee also decided that the above panel shall also address upon the need for inclusion of new varieties in **IS 16008:2016 (Part 1)** Agro Textiles - Shade Nets for Agriculture and Horticulture Purposes - Specification Part 1 Shade Nets Made from Tape Yarns and to also explore the possibility of diversifying the standard scope to include all other possible commercial application uses.

**4.3** The committee SCRUTINIZED the comments received from M/s Texel Industries Limited, Rajasthan and M/s Shakti Polyweave Pvt Ltd, Ahmedabad on IS 17731: 2021 Agro Textiles — Laminated Woven Orchard Protection Covers — Specificationas given in **Annex 9** and **Annex 10** to the agenda. After detailed deliberations, the committee decided to take further inputs from the manufacturers of such products, along with details of various varieties being manufactured based on the type of reinforcing band and selvedge. The inputs, along with supporting documents, shall be placed before the committee in the next meeting of TXD 35.

The committee noted that a clarification was issued to the **BIS, Ahmedabad Branch Office** after consultation with the chairperson of TXD 35 regarding the typographical/editorial error in the requirement specified in Clause 4.2 , Line 6 which shall be interpreted as “**A reinforcement band of 450 ± 5 mm, having double warp tapes shall be provided at the center of the fabric**”. The committee agreed to the above clarification and decided to finalize the following amendment:

1. (*Page* 1, *clause* **4.2**, *line* 6) — Substitute the following for the existing:

A reinforcement band of 450 ± 5 mm, having double warp tapes shall be provided at the center of the fabric.

The committee further DECIDED to waive off the wide circulation of the above amendment as per the provisions laid down under Rule 22(4) of BIS Rules 2018 notified vide GSR 584(E) dated 25 June 2018 as the matter is urgent and amendments be held to have been FINALIZED for publication. BIS may carry out the editorial changes, if any.

**4.4** The committee SCRUTINIZED the extensive in-house test report for IS 17729: 2021 provided by M/s RISHIFIBC Solutions Pvt. Ltd. Karnataka, as given in **Annex 12** to the agenda. The committee also noted that the SASMIRA report was already provided by M/s RISHIFIBC Solutions Pvt. Ltd. Karnataka, which was placed in the 18th committee meeting and the test report from CIPET, Hyderabad, is still pending. After detailed deliberations, the committee decided as follows:

M/s RISHIFIBC Solutions Pvt. Ltd. shall provide the most recent comprehensive in-house test report and shall send the samples to CIPET, Hyderabad, for testing. The test report so received from CIPET, Hyderabad, recent comprehensive in-house test report provided by M/s RISHIFIBC Solutions Pvt. Ltd., along with the SASMIRA test report, shall be placed before the committee in the next meeting of TXD 35 for deliberations and discussions.

**4.5** The committee SCRUTINIZED the comments received from M/s Garware Technical Fibres Pvt Ltd, Pune, as given in Annex 13 to the agenda on IS 17730 (Part 1 & 2), Agrotextiles — Hail Protection Nets for Agriculture and Horticultural Purposes — Specification and after detailed deliberations, the committee decided to finalize the following amendments:

1. For **IS 17730 (Part 1):**
2. (*Page* 1, *clause* **6.2**) — Substitute the following for the existing:

A reinforcement of minimum 10 cm of 6 gauge shall be provided at both the selvedge ends for all widths of hail protection nets. For hail protection nets of width more than 6 m, reinforcement of minimum 10 cm of 6 gauge shall also be provided at the centre of the net.

NOTE — If agreed to between the buyer and the seller, a reinforcement of minimum 10 cm of 6 gauge may also be provided at the centre of the knitted hail protection nets of width less than 6 m.

1. [*Page* 2, *Table* 1, *Sl No.* (viii), *see also* Amendment to Table 1] — Insert the following new footnote at the end of the table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl No.** | **Characteristic(s)** | **Requirement(s)** | | **Method of Test, Ref to** |
| Type 1 | Type 2 |
| (1) | (2) | (3) | (4) | (5) |
| viii) | Seam (joint) strength2), N, *Min:*  a) Wales direction  b) Course direction | 155  215 | 155  255 | IS/ISO 13935-1 |

2)The seam strength testing shall be done in the applicable direction of stitching.

1. For **IS 17730 (Part 2):**
2. (*Page* 1, *clause* **6.2**) — Substitute the following for the existing:

A reinforcement of minimum 10 cm shall be provided at both the selvedge ends for all widths of hail protection nets. A reinforcement of minimum 10 cm shall also be provided at the centre of woven hail protection nets of width more than 6 m.

NOTE — If agreed to between the buyer and seller, a reinforcement of minimum 10 cm may also be provided at the centre of the woven hail protection nets of width less than 6 m.

1. [*Page* 2, *Table* 1, *Sl No.* (ix), *see also* Amendment to Table 1] — Insert the following new footnote at the end of the table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl No.** | **Characteristic(s)** | **Requirement(s)** | | **Method of Test, Ref to** |
| Type 1 | Type 2 |
| (1) | (2) | (3) | (4) | (5) |
| ix) | Seam (joint) strength2), N, *Min:*  a) Warpway  b) Weftway | 385  240 | 385  255 | IS/ISO 13935-1 |

2)The seam strength testing shall be done in the applicable direction of stitching.

The committee further DECIDED to waive off the wide circulation of the above amendments (a &b) as per the provisions laid down under Rule 22(4) of BIS Rules 2018 notified vide GSR 584(E) dated 25 June 2018 as the matter is urgent and amendments be held to have been FINALIZED for publication. BIS may carry out the editorial changes, if any.

**4.6** The committee SCRUTINIZED the in-house test report and SASMIRA test report received from M/s B & V Agro Irrigation Co., Mumbai, for the inclusion of additional variety in IS 16513:2016 Agro textiles—Insect nets for agriculture and horticulture purposes—Specification**,** as given in **Annex 14** to the agenda. After detailed deliberations, the committee decided as follows:

BIS shall prepare draft amendment forincorporating the following changes:

1. [*Page* 2, *Table* 1] — Substitute the following table for the existing:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Sl No.** | **Characteristic (s)** | **Requirements** | | | | **Tolerance** | **Method of test** |
| Type I  30 mesh | Type II  40 mesh | Type II A 40 mesh | Type III  50  mesh |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| i) | Mass, g/m2 | 90 | 105 | 125 | 125 | ± 5 percent | IS 1964 |
| ii) | a) Ends per inch  b) Picks per inch | 30  24 | 40  24 | 40  32 | 50  24 | ± 2  ± 2 | IS 1963 |
| iii) | Cover factor, percent, *Min* | 30 | 40 | 45 | 50 | — | Annex B |
| iv) | Breaking strength of insect nets fabric before UV exposure (ravelled strip method 325 mm × 70 mm)1), kg, *Min*:  a) Warpway  b) Weftway | 80  50 | 120  65 | 120  80 | 140  70 | — | IS 1969 (Part 1) |
| v) | Retention in breaking strength after UV exposure, kg, *Min*: | 85 percent of original actual value of fabric | | | | | Annex C and IS 1969 (Part 1) |
| vi) | Bursting strength, kg/cm2, Min | 10 | 18 | 19 | 20 | — | IS 1966 (Part 1) or (Part 2) |
| vii) | Air permeability in mm/s at 50 pascal water head pressure, *Min* | 6500 | 5000 | 4000 | 3000 | — | IS 11056 |
| 1) Width after ravelling = 50 mm, Gauge length = 200mm | | | | | | | |

The committee also decided that the above draft amendment, so prepared, shall be issued under wide circulation for a period of one month for eliciting technical comments. BIS may carry out the editorial changes as required.

Further, the committee requested M/s Garware Technical Fibres Pvt Ltd, Pune,to share the inputs/data along with supporting test reports for the 20 mesh inspect net variety and other prominent varieties of insect nets and the same shall be discussed during the next meeting of TXD 35.

**Item 5 NEW WORK ITEM PROPOSAL**

The committee scrutinized the minutes of the first panel meeting held on 29 April 2024, for the **new subject proposal for the Azolla bed, Grow bag and Bhusa bag** under the convenorship of Dr. Manoj Khanna.The convenor briefed the committee about the working draft of azolla beds, Grow bags and Bhusa bags.

The committee also scrutinized the 450 GSM variety test report for azolla beds, figure of the azolla bed with the arrangement of overflow holes and optional shade net canopy with UPVC pipes for support and decided to incorporate the same in the working draft of azolla beds.

The committee also scrutinized the Grow bags revised test report of 200 GSM 3-layer laminated fabric, 250 GSM 5-layer laminated fabric variety test reports of grow bags along with the details of most prominent sizes of grow bags for circular and rectangular shapes and decided to incorporate the same in the working draft of grow bags.

The committee further scrutinized Bhusa bag construction details for all the varieties of 400, 600 and 800 kg capacity and the manufacturing process details of the bhusa bag and decided to incorporate the same in the working draft.

The committee further DECIDED that the preliminary drafts, so prepared after incorporating the above changes and further deliberations and discussion in the second panel meeting shall be placed before the committee in the next technical committee meeting of TXD 35.

**Item 6 REVIEW OF PUBLISHED INDIAN STANDARDS**

The committee considered the list of standards due for review, as stated in item **6.1.1** to the agenda. After detailed deliberations, the committee decided to circulate the standards due for review along with review proforma for 30 days to all the members of the TXD 35 sectional committee and to place the comments/inputs received in the next sectional committee meeting for discussion and deliberations.

**Item 7 DATE AND PLACE OF NEXT MEETING**

**7.1** The Committee DECIDED to hold the next meeting of TXD 35 in consultation with the Chairperson after all the actions are completed. The date and place of the meeting would be finalized in consultation with the Chairperson, TXD 35, in due course.

# **Item 8 ANY OTHER BUSINESS**

**8.1** There being no other business, the meeting ended with a hearty vote of thanks to the Chairperson.