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**BUREAU OF INDIAN STANDARDS**

**(NEW DELHI)**

**MINUTES**

**Technical Textiles for Agrotech Sectional Committee, TXD 35 19th Meeting**

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| **Date/Day** | **Time** | **Venue** |
| 17 April 2023(Monday) | 1100 h | Through Video Conferencing |

**ATTENDEES:**

|  |  |  |
| --- | --- | --- |
| 1.
 | **Dr. Manisha Mathur (Chairperson)** | **The Synthetic and Art Silk Mills Research Association, Mumbai** |
|  | Shri Rakesh Yadav | Azuka Synthetic LLP, Panchkula |
|  | Dr Ashok Kumar | Chandra Shekhar Azad University of Agriculture and Technology, Kanpur |
|  | Dr Swapan Kumar Ghosh | Department of Jute and Fibre Technology, Institute of Jute Technology, University of Calcutta |
|  | Dr Vijay Ramakrishnan | Garware Technical Fibres Limited, Pune |
|  | Shri Sachin Kulkarni | —do— |
|  | Shri Rajendra Ghadge | —do—  |
|  | Shri Yewale Mallikarjun | —do— |
|  | Shri Nitin | —do— |
|  | Dr Manoj Khanna | Indian Agricultural Research Institute, New Delhi |
|  | Dr Pankaj Sharma | ICAR-DRMR, Bharatpur |
|  | Shri Debi Prasad Gon | Indian Jute Industries Research Association, Kolkata |
|  | Dr Anup Rakshit | Indian Technical Textile Association, Mumbai |
|  | Ms Ruchita Gupta | —do— |
|  | Shri N K Singh | Office of the Textile Commissioner, Mumbai |
|  | Shri Somyadipta Datta | Office of Jute Commissioner, Kolkata |
|  | Ms Anusua Mukherjee | —do— |
|  | Shri Sunil Mahajan | Reliance Industries Limited, Mumbai  |
|  | Shri Mavji Savani | Rishi Techtex Limited, Mumbai |
|  | Ms Jyotika Nagri | Shri Ambica Polymer Pvt Ltd, Ahmedabad |
|  | Shri R Chandran | Textiles Committee, Mumbai  |
|  | Shri Vinay Shankar Tripathi | Texel Industries Limited, Kalol |
|  | Shri Vikesh Kumar Gupta | V K Packwell Pvt Limited, Kanpur |
|  | Shri Sanjay Saxena | —do—  |
|  | Shri Sachchidanand Tiwari | —do— |
|  | Shri Mohan Shukla  | —do— |

**BIS DIRECTORATE GENERAL:**

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| 27 | Shri J K Gupta | Scientist-E & Head (Textiles) |
| 28 | Shri Tanishq Awasthi | Scientist-B & Member Secretary |

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

**0.1** Shri J K Gupta, Head Textiles welcome the Chairperson and committee member and informed about the proposed QCO to bring 22 Agrotextile products under mandatory BIS certification being considered by Ministry of Textiles on an urgent basis. While addressing to members, Shri J K Gupta said that implementation of QCO will help in improving quality consciousness within country and will stop the import of sub-standard products in the Indian Market.

Shri J K Gupta also urged to the members to thoroughly review the published standards on Agrotextile products for the gap analysis with the current industrial practices and send their suggestions/comments with justification for changes required in the existing standard on priority.

**0.2** Dr Manisha Mathur, Chairperson of TXD 35 welcomed all the members present in the meeting. she requested all the members for their active participation and to provide their precise inputs on the agenda items.

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

**1.1** In absence of any comments, the committee confirmed the minutes of the last meeting held on 23 November 2022 through VC and as circulated vide BIS DG letter No. TXD 35/A2.18 dated 2nd December 2022.

**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:

i) Office of Jute Commissioner will be represented by Ms. Anusua Mukherjee as an alternate member in place of Shri Prabhas Kumar Biswas.

ii) Dr. P K Mandhyan has retired from ICAR - Central Institute for Research on Cotton Technology, Mumbai, fresh nomination will be sought from CIRCOT, Mumbai for representation in TXD 35 Sectional Committee.

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

**3.1** The Committee NOTED the summary of actions taken on the decisions of its last meeting as given in **Annex 2** to the agenda and DECIDED for urgent action on the pending items.

**Item 4** **DRAFT AMENDMENT TO INDIAN STANDARD FOR FINALIZATION**

**4.1** The committee SCRUTNIZED the draft amendment no. 1 to **IS 16008 (Part 1): 2016** **Agro textiles — Shade nets for agriculture and horticulture purposes — Specification Part 1 Shade nets made from tape yarns (*first revision*)** as given in **Annex 3A** to the agenda and after detailed deliberation the committee DECIDED that the above draft amendment to Indian Standard be held to have been FINALIZED for publication after incorporating the editorial changes, if any.

**4.2** The committee SCRUTNIZED the draft amendment no. 1 to **IS 16008 (Part 2): 2016** **Agro textiles — Shade nets for agriculture and horticulture purposes — Specification Part 2 Shade nets made from mono filament yarns (*first revision*)** as given in **Annex 3B** to the agenda and after detailed deliberation the committee DECIDED that the above draft amendment to Indian Standard be held to have been FINALIZED for publication after incorporating the editorial changes, if any.

**4.3** The committee SCRUTNIZED the draft amendment no. 1 to **IS 17730 (Part 1): 2021 Agro-Textiles — Hail Protection Nets for Agriculture and Horticulture Purposes — Specification Part 1 Warp Knitted Hail Protection Nets** as given in **Annex 3C** to the agenda and after detailed deliberation the committee DECIDED that the above draft amendment to Indian Standard be held to have been FINALIZED for publication after incorporating the editorial changes, if any.

**4.4** The committee SCRUTNIZED the draft amendment no. 1 to **IS 17730 (Part 2): 2021 Agro-Textiles — Hail Protection Nets for Agriculture and Horticulture Purposes — Specification Part 2 Woven Hail Protection Nets** as given in **Annex 3D** to the agenda and after detailed deliberation the committee DECIDED that the above draft amendment to Indian Standard be held to have been FINALIZED for publication after incorporating the editorial changes, if any.

**4.5** The committee SCRUTNIZED the comments received from M/s India Nets (Tufropes) Pvt. Ltd. as given in **Annex 3F** to the agenda on the wide circulation draft on **Agro textiles — Bird Protection Nets for Agriculture and Horticulture Purposes — Specification Part 1 Knotted Bird Protection Nets** as given in **Annex 3E** to the agenda and after detailed deliberation the committee DECIDED that the above draft standard be held to have been FINALIZED for publication as Indian standard after incorporating the below changes along with editorial changes, if any:

* (*Page* 3, *Clause* 5.1) — Insert the following note below the paragraph:

‘NOTE — Preferably used twine deniers for manufacturing of knotted bird protection nets are: (500D ×3) ×3, (280D ×5) ×3, (380D ×4) ×3.’

**4.6** The committee SCRUTNIZED the wide circulation draft on **Agro textiles — Bird Protection Nets for Agriculture and Horticulture Purposes — Specification Part 2 Knitted Bird Protection Nets** as given in **Annex 3G** to the agendaandafter detailed deliberation the committeeDECIDED that the above draft standard be held to have been FINALIZED for publication as Indian standard after incorporating the below changes along with editorial changes, if any:

* (*Page* 2, *Table* 4.1) — The table for requirements of knitted bird protection nets shall be substituted with two separate tables on the basis of ‘*square*’ and ‘*diamond*’ mesh type for all the four types of net. The modified tables shall be as follows:

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| --- |
| **Table 1 Requirement of Knitted Bird Protection Nets with Diamond Mesh**  |
| (Clause 7.2) |
|  |  |  |  |  |  |  |  |
| **Sl No.** | **Characteristic(s)** | **Requirement(s)** | **Tolerances** | **Method of Test, Ref to** |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|   |  | Type I | Type II | Type III | Type IV |   |  |
| (i) | Mass, g/m2 | 40 | 30 | 24 | 20 | +/- 5 percent | IS 1964 |
| (ii) | Mesh Type  | Diamond | Diamond | Diamond | Diamond | - | Visual |
| (iii) | Average mesh size, mm | 15 MMKK(Knot to Knot) | 20 MMKK | 25MMKK | 30 MMKK | +/-2 mm | IS 15789 |
| (iv) | Mesh Breaking strength, Min, N | 50 | 50 | 50 | 50 | - | IS 5815 (part 5) |
| (v) | Retention of breaking strength after UV exposure of 144 hours, percent, Min | 85 percent of original actual value (fabric) | - | Annex B and IS 5815 (part 5) |
| (vi) | Colour fastness to artificial light1) | 4 or better | - | IS/ISO 105-B02 |
| 1) Applicable for coloured bird protection nets only |

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| **Table 2 Requirement of Knitted Bird Protection Nets with Square Mesh** |
| (Clause 7.2) |
|  |  |  |  |  |  |  |  |
| **Sl No.** | **Characteristic(s)** | **Requirement(s)** | **Tolerances** | **Method of Test, Ref to** |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|   |  | Type I | Type II | Type III | Type IV |   |  |
| (i) | Mass, g/m2 | 20 | 15 | 12 | 10 | +/-5 percent | IS 1964 |
| (ii) | Mesh Type  | Square | Square | Square | Square | - | Visual |
| (iii) | Average mesh size, mm | 15 MMSQ | 20 MMSQ | 25 MMSQ | 30 MMSQ | +/-2 mm | IS 15789 |
| (iv) | Mesh Breaking strength, Min, N | 50 | 50 | 50 | 50 | - | IS 5815 (part 5) |
| (v) | Retention of breaking strength after UV exposure of 144 hours, percent, Min | 85 percent of original actual value (fabric) | - | Annex B and IS 5815 (part 5) |
| (vi) | Colour fastness to artificial light1) | 4 or better | - | IS/ISO 105-B02 |
| 1) Applicable for coloured bird protection nets only |

**4.7** The committee SCRUTNIZED the wide circulation draft on **Agro textiles — Bird Protection Nets for Agriculture and Horticulture Purposes — Specification Part 3 Extruded Bird Protection Nets** as given in **Annex 3H** to the agendaandafter detailed deliberation the committeeDECIDED that the above draft standard be held to have been FINALIZED for publication as Indian standard after incorporating editorial changes, if any.

**Item 5 COMMENTS RECEIVED ON PUBLISHED INDIAN STANDARDS**

**5.1** Thecommittee was informed that an All India First (AIF) application for the grant of license on **IS 16202 : 2014 Agro Textiles — Woven Ground Covers for Horticulture Application — Specification** was received by BIS along with some editorial issues in IS 16202 : 2014 raised by the applicant.

Based on the observation of the applicants discussed during AIF VC meeting involving only the participation of BIS personnels, a draft amendment no. 1 to IS 16202 : 2014was prepared and the same was circulated within the committee members of TXD 35 sectional committee for a period of one week for eliciting comments. No comments on the changes proposed in amendment no 1 to IS 16202 : 2014 were received from any of the member of TXD 35 Sectional committee.

However, comments regarding the need of separate deniers for warp and weft and for the inclusion of different GSM for woven ground covers were received fromSmt. Jyotika Nagri, Shri Ambica Polymer Private Limited, Ahmedabad.

Subsequently, since the changes proposed in draft amendment no. 1 to IS 16202 : 2014 were editorial and non-controversial in nature, the wide circulation of the above draft amendment was waived off under Rule 22 (4) of BIS Rules 2018 notified vide GSR 584(E) dated 25 June 2018 and approval of chairperson was obtained for proceeding the draft amendment for publication.

However, in the meantime 19th meeting of TXD 35 sectional committee has been convened on 17th April 2022. The finalized amendment no. 1 to IS 16202 : 2014 was again placed before the members of the committee and the after discussion committee finalized the same for publication after incorporating editorial changes, if any.

The committee further SCRUTNIZED the comments received from M/s Shri Ambica Polymer Pvt Ltd, Ahmedabad as given in **Annex 4** to the agenda on **IS 16202 : 2014 Agro Textiles — Woven Ground Covers for Horticulture Application — Specification** andafter detailed deliberation the committeeDECIDED to form a panel for deliberating upon the need of different deniers for warp and weft as suggested by Smt. Jyotika Nagri, Shri Ambica Polymer Private Limited, Ahmedabad and to also include other different varieties of ground covers based on GSM.

The composition of the panel is given below:

1. Smt A Sudam, SASMIRA, Mumbai (Convener)
2. Representative from M/s VK Packwell Pvt. Ltd. Member
3. Smt. Jyotika Nagri, Shri Ambica Polymer Private Limited, Ahmedabad Member
4. Representative from CIPET, Bhopal Member
5. Users of the product Member
6. Shri Tanishq Awasthi, BIS, New Delhi Member Secretary

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

**5.2** The Committee SCRUTNIZED the comments received fromNCPAH based on the recommendations of the committee constituted under Rainfed Farming System Division (RFS) on **IS 16627:2017 HDPE Lamination Woven Lay Flat Tube for use in Mains & Sub-mains of Drip Irrigation system** and **IS 17728:2021 High Density Polyethylene (HDPE) Laminated woven Lay Flat Tube & Fittings for use in Rain Irrigation system** as given in **Annex 5** to the agenda and after detailed deliberation committee DECIDED as follows:

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| --- | --- | --- |
| Sl No. | COMMENTS | RECOMMENDATIONS |
| 1. | It is recommended that the standards IS 16627: 2017 and IS 17728: 2021 should be thoroughly discussed in FAD 17 committee of BIS for technical parameters like tensile strength and other physical properties, pressure at emitting points, uniformity of water emitted from emitters on lateral and such other parameters. FAD 17 is a committee constituted by BIS where all committee members are experts in Micro Irrigation systems and many of them are PVC/HDPE pipe manufacturers MI systems manufacturers and at present, PVC/rigid HDPE pipes are used in Mains and Sub mains of Drip Irrigation systems. FAD 17 committee can thoroughly study the above-mentioned standards on technical ground and in comparison, with presently used pipes and provide comments to RFS division.  | * The Committee SCRUTNIZED the request for discussion on the technical parameters of IS 16627 : 2017 and IS 17728 : 2021 and DECIDED that the requirements for physical parameters like Breaking strength, Elongation at break, Retention of breaking strength after UV exposure, Abrasion resistance, Trapezoid tear strength, Puncture strength, pressure at emitting points, uniformity of water emitted from emitters on lateral etc are already covered and specified in the product standard to ensure the longevity & fitness of the product.
* The committee also noted that before finalization of these parameters the wide circulation drafts were also circulated to the members of FAD 17 sectional committee and no comments/objections were received from FAD 17 sectional committee members, subsequently the sectional committee finalized the product standard.
* Shri R Chandran, Textiles Committee, Mumbai also informed the committee that according to the HS Nomenclature (2022 edition) developed by world customs organization, the mentioned product falls under the chapter 5909 of the section XI under the heading **‘Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use’**. Accordingly the standardization of these subjects shall be taken up by TXD 35 Sectional Committee rather than FAD 17 Sectional Committee.
* Dr. Pankaj Sharma, ICAR-DRMR, Bharatpur and Dr. Manoj Khanna, Water Technology Center, IARI, New Delhi informed the committee that these products are extensively used in their respective departments and are working fine for last 6 years, hence the above mentioned products are suitable for the intended purposes and no changes in technical parameters are required at the moment.
 |
| a. | The HDPE Laminated Woven Lay Flat Tube & Fittings (IS 17728: 2021) for use in Rain Irrigation systems have lesser drilled holes used for rain pipe. Since these holes/orifices are very small, the chances of blockages are very high which cannot be further cleaned. Further, these small holes/orifices will make it unsuitable for fertilization, in the eventuality of blockage the fertilizers would not get sprayed all around, thus increasing weed growth. | * The committee SCRUTNIZED the comments and NOTED that several extensive trials at various government institutes like ICAR, COE Kannauj U.P, Udhyan Vibhag Kashipur Uttarakhand etc have been performed and no major blockage in holes of rain irrigation pipes have been reported in their performance reports.
* Dr. Manoj Khanna, Water Technology Center, IARI New Delhi informed the committee that since these rain irrigation based lay flat tubes and fitting are operated on a sufficiently high range of working pressure, chances of blockages of holes/orifices does not arises.
* The committee further DECIDED that if user want they can easily use screen filters in this system to avoid any type of blockages in holes of rain irrigation pipes (IS 17728 : 2021)
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| b. | The HDPE Laminated Woven Lay Flat Tube & Fittings for use in Rain irrigation systems (IS 17728-2021) has the coefficient of Distribution Uniformity (CDU) of 80-85% whereas Drip Irrigation system has CDU of 90-95%. Further, the coverage spray of rain pipe in this product in comparison to sprinklers is limited and once plants grow moderately taller the spray will get restricted reducing the CDU considerably. Hence, it may not be justified to introduce these new products with less/reduced CDU to be covered under any welfare scheme.  | * The committee deliberated on the issue of comparison of Coefficient of Distribution Uniformity (CDU) of HDPE Laminated Woven Lay Flat Tube & Fittings for use in Rain irrigation systems (IS 17728-2021) to Drip Irrigation system and DECIDED that CDU of rain irrigation system (IS 17728 : 2021) shall not be compared with CDU of Drip irrigation system since the latter one operates at a very low working pressure.
* The committee further DECIDED that CDU of HDPE Laminated Woven Lay Flat Tube & Fittings for use in Rain irrigation systems (IS 17728-2021) shall be compared with the sprinkler irrigation systems.

The committee also noted that the CDU of HDPE Laminated Woven Lay Flat Tube & Fittings for use in Rain irrigation systems (IS 17728-2021) is in the range of 87 to 90% while the CDU of the Sprinkler Irrigation is 85% only. |
| c. | The tubing of these products is very thin as compared to HDPE/LLDPE tubing. This may cause the development of cracks very easily on exposure to sunlight/UV ray effect, thus limiting its life span and usage.  | * The committee DELIBRATED on the thickness of products and informed that these products are made from multilayer laminated woven fabric which are also made UV stabilized by incorporating the requirement of minimum 2.5 % carbon black content enhancing its life span and longevity when exposed to sunlight/UV rays. So as a result, these products would not develop cracks during exposure to sunlight/UV rays.

 * Further Dr Ashok Kumar, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur informed the committee that these systems are installed in the department and are working well for more than 8 years.
* A performance report of the mentioned lay flat tube was also provided by KVK, Daleep nagar, Kanpur dehat and the same is attached for reference.
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| d. | These products require a much higher working pressure of 3,7 to 4.3 Kg.cm2 in comparison to drip (1.00 to 1.5 kg/cm2) and sprinkler (2.00 to 2.5kg/cm2), thus increasing the pumping costs tremendously which is absolutely undesirable and unjustifiable.  | * The committee scrutinized the comments on the working pressure of HDPE Laminated Woven Lay Flat Tube & Fittings for use in Rain irrigation systems (IS 17728-2021) and NOTED that the working pressure requirements of the rain irrigation system is in the range of 0.75 kg/cm2 to 1.25 kg/cm2 which is clearly mentioned in IS 17728 : 2021.
* Accordingly, the committee DECIDED that the working pressure requirement of 3.7 to 4.3 kg/cm2 for HDPE lay flat tubes are factually incorrect.
* Dr. Manoj Khanna, Water Technology Center, IARI New Delhi also informed the committee that drip irrigation system operates on a very low working pressure (in which laterals operate at 1.0 Kg/cm2 while water emits at nearly zero pressure in the form of drop from emitter) and rain irrigation system operates on 0.75 to 1.25 kg/cm2 working pressure which is sufficient and does not add up in increasing the pumping costs.
 |
| e. | The existing PVC/HDPE pipes used in Mains/Sub mains of Micro Irrigation Systems can be used for saline water without any side effects. However, for proposed products, it is mentioned not to use in saline water. So, such limitations also need to be checked and considered.  | * The committee deliberated on the issue of usage of saline water in Mains/Sub mains of Micro Irrigation Systems and DECIDED that these products are mainly used for agricultural purposes which majorly uses a supply of fresh water and usage of saline water is very small. However, if saline water is used in rain irrigation systems, the same can be cleaned with flush out system provided in the rain irrigation system.
 |
| 2. | It is recommended that trials on products IS 16627: 2017 and IS 17728: 2021 should be taken at various PFDCs, KVKs and SAUs on technical parameters and in comparison, with existing pipes used in Micro Irrigation systems and detailed technical reports to be submitted to RFS division.  | * The committee NOTED that the successful field trials of these products have been carried out at various organizations such as ICAR, COE Kannauj U.P, Udhyan Vibhag Kashipur Uttarakhand etc and satisfactory performace reports were obtained.

 * Dr Ashok Kumar, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur also informed the committee that drip irrigation systems (IS 16627: 2017) are on a successful trial at K.V.K DALEEP NAGAR KANPUR DEHAT U.P since July 2014 for more than 8 years and rain irrigation systems (IS 17728: 2021) are also on successful trial & research for more than 4 years. A certificate for the same was also provided and attached.
 |
| 3. | The life/durability of the products used in Micro Irrigation systems through operational guidelines of PDMC is 7 years. The committee recommends that the products under IS 16627- 2017 and 1S 17728-2021 need to be validated on their life/durability and it should match with the operational guidelines of PDMC.  | * The Committee informed that there is a well-established proof of working life and longevity of the product as provided in the report by KVK DALEEP NAGAR, KANPUR DEHAT U.P and products are working satisfactorily for more than 8 years, exceeding the mentioned operational guidelines of PDMC of 7 years. The Committee further DECIDED that these products are fit for use under operational guidelines of PDMC following the report received from KVK DALEEP NAGAR, KANPUR DEHAT U.P. and field trial undertaken at various organizations such as ICAR, COE Kannauj U.P, Udhyan Vibhag Kashipur Uttarakhand etc.
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**Item 6 REVIEW OF PUBLISHED STANDARDS**

**6.1** The committee scrutinized the review analysis of **IS 17070 : 2019 Jute Agrotextiles for Growth of Plant and Suppression of Weeds — Specification** as given in **Annex 6** to the agenda and DECIDED to reaffirm **IS 17070 : 2019** 7 for a further period of 5 years.

**Item 7 TECHNICAL WORK PROGRAMME OF THE COMMITTEE**

**7.1** The Committee NOTED the list of published standards under TXD 35 as given in **Annex 7** to the agenda.

**Item 8 ANY OTHER BUSINESS**

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