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BUREAU OF INDIAN STANDARDS
(NEW DELHI)

AGENDA

GEO-SYNTHETICS SECTIONAL COMMITTEE, TXD 30 **29th Meeting**

Date/Day	Time	Venue
20 July, 2023 (Thursday)	1100 h	Through Video Conferencing

Chairman: Dr. A. N. Desai, SITRA Council, Coimbatore

Member Secretary: Shri Himanshu Shukla, Scientist-B, Textile Department

Item 0 WELCOME AND INTRODUCTORY REMARKS BY THE CHAIRMAN

Item 1 NEW INITIATIVES IN STANDARDIZATION

1.1 With a view to facilitate effective implementation of the SNAP 2022-27, streamline the functioning of the standardization activity and with an aim to make BIS a future-ready organization, following process reforms have been instituted by the competent authority:

i) Rolling Annual Action Plan for the year 2023-24 as given **Annex 1(a) (P-5 to 6).**
ii) Annual calendar of Technical Committee meetings as given in **Annex 1(b) (P-7).**
iii) List of National and International events to be participated as given in **Annex 1(c) (P-7).**
iv) Scientific journals and periodicals to be subscribed as given in **Annex 1(d) (P-7).**

A brief presentation on the Process Reforms proposed for effective functioning of standardization activity is given at **Annex 1(e) (Attached separately)**.

1.1.1 The committee may **NOTE** and **DECIDE.**

Item 2 CONFIRMATION OF MINUTES OF LAST MEETINGS

2.1 The minutes of the 28th meeting of TXD 30 held on 17th November 2022 were circulated vide letter No. TXD 30/A2.28 dated 13th December 2022. Comment has been received from, Shri Rajendra Ghadge, Garware Technical Fibers Ltd, Pune. Comment as received is given in **Annex 2** (**P-8).**

2.1.1 The committee may **APPROVE** the minutes as circulated.

Item 3 SCOPE AND COMPOSITION OF TXD 30

3.1 The present scope and composition of TXD 30 is given in **Annex 3** (**P-9 to 12).**

3.1.1 The committee may **REVIEW**.

3.2 Co-option requests have been received from Jeevan Ecotex Pvt. Ltd., Mumbai and Tensar Geosynthetics India Pvt Ltd., Mumbai The company profile and nominaton details as received from Jeevan Ecotex Pvt. Ltd., Mumbai. and Tensar Geosynthetics India Pvt Ltd., Mumbai are given in **Annex 4 (P- 13 to 15)**.

3.2.1 The committee may **DELIBERATE** and **DECIDE**.

Item 4 ISSUES ARISING OUT OF THE PREVIOUS MEETING

4.1 A summary of actions on the various decisions taken during the 28th meeting are given in **Annex 5 (P-16 to 19).**

4.1.1 The committee may **NOTE and DECIDE**.

Item 5 DRAFT STANDARDS/AMENDMENT FOR FINALIZATION

5.1 As decided by the committee in the last meeting, the following draft amendment was issued in wide circulation for two month for eliciting technical comments from stake holders vide our letter reference no.- TXD 30/21617 dated 27-12-2022.

i) Amendment No. 1 to IS 16362 : 2020 Geosynthetics — Geotextiles used in subgrade stabilization in pavement structures -Specification (*first revision*) [Doc TXD 30(21617)].

No comments received. Draft amendment as issued in wide circulation is given in **Annex 6 (P-20)**

5.1.1 The committee may **DECIDE.**

Item 6 COMMENTS ON PUBLISHED INDIAN STANDARDS

6.1 Comments have been received from Shri Saurabh Vyas, Techfab India, Mumbai, Shri Rajendra Ghadge, Garware Technical Fibers Ltd, Pune, Surat Branch Office (SUBO), BIS Central Marks Department-II, BIS on the following standards:

i) IS 16391 : 2015 Geosynthetics – Geotextiles used in sub-grade separation in pavement structures – Specification
ii) IS 16392 : 2015 Geosynthetics - Geotextiles for permanent erosion control in hard armor systems – Specification
iii) IS 16393 : 2015 Geosynthetics - Geotextiles used in subsurface drainage application - Specification
iv) IS 16090 : 2013 Geo-synthetics – Geo-textiles used as protection (or cushioning) materials – Specification
v) IS 16362 : 2020 Geosynthetics – Geotextiles used in subgrade stabilization in pavement structures – Specification (first revision)

The comments as received from Shri Saurabh Vyas, Techfab India, Mumbai, Shri Rajendra Ghadge, Garware Technical Fibers Ltd, Pune, Surat Branch Office (SUBO), BIS, Central Marks Department, BIS are given at **Annex 7 (P-21 to P-29).**

6.1.1 The committee may **DELIBERATE** and **DECIDE.**

6.2 Comments have been received from Tensar Geosynthetics India Pvt Ltd., Mumbai on the following Indian Standards:

i) IS 17371 : 2020 Geosynthetics – Geogrids for flexible pavements – Specification
ii) IS 17373 : 2020 Geosynthetics – Geogrids used in reinforced soil retaining structures – Specification

Comments have also been received from Dr. Ratnakar Mahajan, Macaferri Environmental Solutions Pvt Ltd, Navi Mumbai on 'IS 17373 : 2020 Geosynthetics – Geogrids used in reinforced soil retaining structures – Specification'.

The comments as received from Tensar Geosynthetics India Pvt Ltd., Mumbai and Dr. Ratnakar Mahajan, Macaferri Environmental Solutions Pvt Ltd, Navi Mumbai have been given in **Annex 8 (P-30 to P-35)**

6.2.1 The committee may **DELIBERATE** and **DECIDE.**

6.3 Comment has been received from Guwahati Branch Office (GHBO) after manak manthan on 'IS 16654 : 2017 Geosynthetics - Polypropylene multifilament woven geobags for coastal and waterways protection – Specification'.

The comment as received from Guwahati Branch Office (GHBO) has been given in **Annex 9 (P-36).**

6.3.1 The committee may **DELIBERATE** and **DECIDE.**

6.4 Comments have been received on Indian Standard on'Geosynthetics — Reinforced Soil Structures — Code of Practice' from Dr. Anand Katti, Emeritus Professor, Datta Meghe College of Engineering, Mumbai and G R Infraprojects Ltd., Gurugram and Tensar Geosynthetics India Pvt Ltd., Mumbai.

The comments as received have been given in **Annex 10 (Attached Separately).**

6.4.1 The committee may **DELIBERATE** and **DECIDE.**

Item 7 Revision of 'IS 14986 : Guidelines for Application of Jute Geotextile for Rain Water Erosion Control in Road and Railway Embankments and Hill Slopes'

7.1 In the 27th meeting, it was decided that IJIRA, Kolkata shall provide test results for minimum breaking load and maximum elongation at break with 200 mm width sample of Type 1 and Type 2 varieties tested as per IS 16653 for validation of test results for incorporating in the standard and standard shall be taken for revision to be published in two parts, one for covering the guidelines and the other for covering the product requirements for Open Weave JGT.

The test result as received from IJIRA, Kolkata is given in **Annex 11 (P-37 to P-38).**

7.1.1 The committee may **DELIBERATE** and **DECIDE.**

Item 8 REVIEW OF STANDARDS

8.1 As per procedure of BIS, standards which were published/reaffirmed are required to be reviewed to assess adequacy of the requirements specified. Review is carried out keeping in view the changes in technology, current industrial practices and the needs/expectations of the consumers/users so as to decide regarding further reaffirmation/ revision/withdrawal/amendment of the standards under review.

The list of standards due for review under the domain of TXD 30 are given at **Annex 12 (P-39).**

8.1.1 The committee may **DELIBERATE** and **DECIDE.**

8.2 As per the decision of the Competent Authority of Bureau, it is decided to review all standards published prior to the year 2000.The list of standards published prior to 2000 under the domain of TXD 30 are given at **Annex 13 (P-40)**.

8.2.1 The committee may **DELIBERATE** and **DECIDE**.

Item 9 ANY OTHER BUSINESS

ANNEX 1 a)
(*Item* 1.1)

ACTION PLAN 2023-24 FOR FORMULATION, REVISION AND REVIEW OF INDIAN STANDARDS

a) Standards to be Formulated

	Subject / IS	Total Timeline	Month and stage(s) to be completed during 2023-24			
			P-Draft	WC-Draft	F-Draft	Publication
New Standards						
1	Drainage composites	12 Months	October 2023	March 2024	-	-
2	Geotubes	12 Months		April 2023	August 2023	November 2024
3	Geosynthetic in Bitumen Layer for Flexible Pavements	12 Months	-	August 2023	November 2023	March 2024
4	Geosynthetic Clay Liner	12 Months	October 2023	December 2023	-	-
5	Coir nonwoven stitched composite geotexiles	12 Months	April 2023	August 2023	November 2024	March 2024

b) Standards to be Revised

Sl No.	Subject / IS	Total Timeline	Month and stage(s) to be completed during 2022-23			
			P-Draft	WC-Draft	F-Draft	Publication
Revisions						
1	IS 13325 : 1992 Determination of tensile properties of extruded polymer geogrtds using the wide strip - Test method	12 Months	Sept 2023	Jan 24	-	-
2	IS 13326 : Part 1 : 1992 Evaluation of interface friction between geosynthetics and soil method of test: Part 1 modified direct shear technique	12 Months	Sept 2023	Jan 24	-	-
3	IS 14293 : 1995 Geotextiles - Method of test for trapezoid tearing strength	12 Months	Sept 2023	Jan 24	-	-

4	IS 14294 : 1995 Geotextiles - Method for determination of apparent opening size by dry sieving technique	12 Months	Sept 2023	Jan 24	-	-
5	IS 14324 : 1995 Geotextiles – Methods of test for determination of water permeability – Permittivity	12 Months	Sept 2023	Jan 24	-	-
6	IS 14706 : 1999 Geotextiles - Sampling and preparation of test specimens	12 Months	Sept 2023	Jan 24	-	-
7	IS 14714 : 1999 Geotextiles - Determination of abrasion resistance	12 Months	Sept 2023	Jan 24	-	-
8	IS 13162 : Part 2 : 1991 Geotextiles – Methods of test Part 2 Determination of resistance to exposure of ultraviolet light and water (Xenon-arc type apparatus)	12 Months	Sept 2023	Jan 24	-	-
9	IS 13162 : Part 4 : 1992 Geotextiles – Methods of test Part 4 Determination of puncture resistance by falling cone method	12 Months	Sept 2023	Jan 24	-	-

ANNEX 1 b)
(*Item* 1.1)

ANNUAL CALENDER OF TECHNICAL COMMITTEE MEETINGS FOR 2023-24

Sl. No.	**Committee**	**Meeting month**			
		Q1	Q2	Q3	Q4
4	TXD 30	June 23	Sep 23	Dec 23	March 24

ANNEX 1 c)
(*Item* 1.1)

LIST OF NATIONAL AND INTERNATIONAL EVENTS TO BE PARTICIPATED

Seminar/Webinar title	**Date/month**	**Organizer/country**	**Area**
Geosynthetics Conference	Feb. 5-8, 2024	Kansas City, MO USA	Geosynthetics, construction
International Conference on Geosynthetic and Geotextile Products,	October 28-29, 2023	Paris, France	Geotextiles, Geosynthetics

ANNEX 1 d)
(*Item* **1.1**)

LIST OF SCIENTIFIC JOURNALS/MAGAZINES TO BE SUBSCRIBED

Sl. No.	**Magazine/ Other Documents**	**Field**
1	Technical textile innovation	Technical textiles
2	Tetex	Technical textiles and high performance apparel sectors
3	The Indian Textile Journal	Apparel & garments, Fibers & raw materials, Home textiles
4	Textile value chain	Fibers, Fabrics, Home textiles, Dyes & chemicals, Apparel &fashion

ANNEX 2
(*Item* 2.1)

COMMENT ON MINUTES OF 28th MEETING OF TXD 30:

Commentator: Shri Rajendra Ghadge, Garware Technical Fibers Ltd, Pune

Comment:

Greetings from Garware Technical Fibres Ltd. Thanks for the detailed information of Minutes of 28 th Meeting of Geo-synthetics Sectional Committee, TXD 30.

For Item 7 NEW WORK ITEM PROPOSAL The committee considered the list of new work item proposal as identified in SNAP 2022-27 under the domain of TXD 30 for the following items:

a) Drainage Composite
b) Rockfall protection nets
c) Geosynthetic clay liners
d) Textiles Fabric impregnated with cement for erosion control
e) Woven and knitted geotextiles for all subgrade stabilization
f) Geocomposite strips

As Garware Is manufacturers of Rockfall Protection Nets and different type of Woven geotextiles, request Garware participation in the panel constituted for this purpose.

ANNEX 3
(*Item* 3.1)

COMPOSITION AND SCOPE OF GEO SYNTHETICS SECTIONAL COMMITTEE, TXD 30

SCOPE: a) To formulate Indian standards on terminology, testing, specifications and codes of practices for identification, handling, storage and installation, etc. of all geo-synthetic products including geo-textiles, geo-membranes, geo-grids, geo-foams, geo- composites, clay liners and other geo-synthetic related products.

b) To liaise with the work of ISO/TC 221 Geo-synthetics Technical Committee as a participating member.

Chairman- Dr. A N Desai, Scientific Member, SITRA Council

Organization	*Representative(S)*
1. The South India Textile Research Association Council, Coimbatore	Dr A. N. Desai (***Chairman***)
2. Ahmedabad Textile Industry's Research Association, Ahmedabad	Smt Deepali Plawat Shri Jigar Dave (*Alternate*)
3. Best Geotechnique Pvt Ltd, Mumbai	Shri Satish Naik
4. Central Coir Research Institute, Alappuzha	Dr. S. Radhakrishnan Smt Sumy Sebastian (*Alternate*)
5. Central Road Research Institute, New Delhi	Dr. P. S. Prasad Dr. Pankaj Gupta (*Alternate*)
6. Central Soil and Materials Research Station, New Delhi	Dr R. Chitra Dr Manish Gupta (*Alternate*)
7. Charankattu Coir Mfg. Co. (P) Ltd, Kerala	Shri C. R. Devraj Shri C. D. Athul Raj (*Alternate*)
8. Department of Jute and Fibre Technology, Kolkata (*Alternate*)	Dr. Swapan Ghosh Prof (Dr) A. K. Samantha
9. DKTE Centre of Excellence in Nonwovens, Ichalkaranji	Shri Aniket S. Bhute
10. Ganga Flood Control Commission, Patna (*Alternate*)	Shri M. K. Srinivas Shri Amitabh Prabhakar

11. Garware Technical Fibers Ltd, Pune	Shri Tirumal Kulkarni Shri Rajendra Ghadge
(*Alternate*)	
12. Geosynthetics Testing Services Pvt Ltd, Ahmedabad	Shri Ravikant Sharma
13. ICAR- National Institute of Natural Fibre Engineering & Technology, Kolkata	Dr. Sanjoy Debnath Dr. Kartick Samanta (*Alternate*)
14. Indian Geotechnical Society, New Delhi	Dr. Bappaditya Manna Dr Debayan
Bhattacharya(Alternate)	
15. Indian Institute of Technology, Gandhinagar	Prof. Amit Prashant
16. Indian Institute of Technology, Delhi	Prof. A.K. Ghosh
17. Indian Institute of Technology, Madras	Prof. K Rajagopal
18. Indian Jute Industries' Research Association, Kolkata	Dr. Mahuya Ghosh Shri Palash Paul (*Alternate*)
19. Indian Jute Mills Association, Kolkatta	Shri S. K. Chandra Shri J. K. Behera (*Alternate*) Shri Bhudipta Saha (YP)
20. Indian Technical Textile Association, Mumbai	Dr. Anup Rakshit Smt. Ruchita Gupta (*Alternate*)
21. International Geosynthetics Society, India Chapter, New Delhi	Shri M. Venkataramn Dr G. P. Patel (*Alternate*)
22. Kusumgar Corporates, Mumbai	Shri Y. K. Kusumgar Dr M. K. Talukdar (*Alternate*)
23. Landmark Material Testing and Research Laboratory Pvt. Ltd. (*Alternate*)	Dr. Anil Dixit Shri Harsh Kumar Chittora
24. Macaferri Environmental Solutions Pvt Ltd, Navi Mumbai (*Alternate*)	Dr. Ratnakar Mahajan Smt Minimol Korulla
25. Megaplast India Pvt Ltd, Daman	Shri C. V. Rajesh Shri Tatwadarsi S. Tripathy
(*Alternate*)	
26. Ministry of Road Transport & Highways, New Delhi	Shri Sanjiv Kumar

27. Municipal Corporation of Greater Mumbai, Thane	Dr. Vishal Ramesh Thombare Shri Mandar Bhalchandra Pingle *(Alternate*)
28. National Highways Authority of India, Ghaziabad	Shri Rakesh Prakash Singh Shri Mudit Garg *(Alternate)*
29. National Jute Board, Kolkatta	Shri M. Dutta
30. Office of The Jute Commissioner, Kolkatta (*Alternate*)	Shri R. K. Roy Shri Soumyadipta Datta
31. Office of The Textile Commissioner, Mumbai	Shri Sivakumar S Shri Sanjay Charak (*Alternate*)
32. Premier Polyfilms Ltd, Ghaziabad	Shri Amitaabh Goenka Shri Praveen Kumar (*Alternate*)
33. Rajadhani Institute of Engineering & Technology, Trivandrum	Dr. K. Balan
34. RDSO, Lucknow (*Alternate*)	Shri Sanjay Kumar Awasthi Shri Santosh Kumar Ojha
35. Reliance Industries Ltd, New Delhi (*Alternate*)	Shri V Ravikanth Shri Rajendren Subramanian
36. Sahastra Engineers Pvt Ltd, Noida	Shri Vankata Mayur
37. Strata Geosystems (I) Pvt Ltd, Mumbai (YP)	Shri Narendra Dalmia Shri Shahrokh Bagli (*Alternate*) Shri Suraj Vedpathak
38. Techfab India, Mumbai	Shri Anant Kanoi Shri Saurabh Vyas (*Alternate*)
39. Texel Industries Limited, Gandhinagar	Shri Shailesh R. Mehta Shri Anil Sharma (*Alternative)*
40. The Bombay Textile Research Association, Mumbai	Dr. Sreekumar Shri G. R. Mahajan (*Alternate*)
41. The Synthetics & Art Silk Mills Research	Dr. Manisha Mathur

	Association, Mumbai (*Alternate*)	Shrimati Ashwini Sudam
42.	In Personal Capacity	Dr. G V Rao
43.	In Personal Capacity	Shri V. N. Gore
44.	In Personal Capacity	Shri V. K. Patil
45.	In Personal Capacity	Shri Jayant Nashikkar
46.	In Personal Capacity	Shri P. K. Choudhury

ANNEX 4
(*Item* 3.2)

A) CO-OPTION REQUEST FROM JEEVAN ECOTEX PVT LTD, MUMBAI

Mail from office of Textile Commissioner

Sir,
Kindly see the trailing mail from Sh Aditya Agarwal, MD , JEEVAN ECOTEX PVT LTD, Mumbai.The unit is in bussiness of Technical Textiles and Sh Agarwal has rich experince in NonWovens and Geotextiles.It is recommended that he may be included as memeber in TXD 30 & TXD 33 and any more such committees for his valuable inputs in formulatig standards in technical Textiles.
Thanks and Regards

Ajay pandit
Joint Textile Commissioner
O/o TXC Mumbai

Mail from JEEVAN ECOTEX PVT LTD

Kind Attn: Mr Ajay Pandit
(Director)

We, JEEVAN ECOTEX PVT LTD, like to introduce ourselves as manufacturers of technical textiles viz: nonwoven needlepunched fabric for geotextiles, composites and heat and sound insulation etc.. We have an experience in the design and manufacturing of nonwovens of 25 YEARS and have manufacturing set up at in and around Mumbai and have recently expanded our facility to Sangli, Maharashtra by adding nonwoven needlepunch lines. We shall soon start to manufacture coir geotextiles also.
We request you to kindly admit us in the TXD 30 (for geotextiles),TXD33(for nonwovens) committees so that we can share our inputs in formulating the specifications and also help in optimising the existing products. This is an emerging segment and a lot of products are being developed by us. Hence we request you to kindly request the committee to consider our request to include us.
We recommend the following persons as representatives,
1) Shri. Aditya Agarwaal , M.D. (9820007221, aditya@jeevanecotex.com)
2) Shri. Dhananjay Limaye , Dir. operations (9823112627, operations@jeevanecotex.com)

Please find our brochures reading our activities for your reference.
We look forward to a positive reply,

Thanking you,

ADITYA AGARWAAL
M.D.
JEEVAN ECOTEX PVT LTD
1109B, KAILAS BUSINESS PARK,
PARK SITE,
VIKROLI WEST,
MUMBAI-400079.

B) CO-OPTION REQUEST FROM TENSAR GEOSYNTHETICS INDIA PVT LTD., MUMBAI

Our Ref : TGIPL/2023/KJ-2152
Dated : 25th May, 2023
BUREAU OF INDIAN STANDARD
BIS
9, BAHADUR SHAH ZAFAR MARG,
NEW DELHI,
DELHI 110002
SUBJECT: REQUEST FOR REPRESENTATION IN BIS CODE FORMATION COMMITTEE
KIND ATTN: MR. HIMANSHU SHUKLA,
SCIENTIST B- TEXTILE

Dear Sir,

We, Tensar Geosynthetics India Pvt Ltd, would like to be a member of the code formation committee for the application of Reinforced Soil Wall & slopes, Slope stability, use of geosynthetics in flexible pavements, Glass fibre grid, and other applications using Geosynthetic materials.

Tensar is a world-leading manufacturer and provider of ground stabilization and soil reinforcement solutions. Our innovative products have benefited thousands of constructions and civil engineering projects around the world for nearly 50 years. Through our global team and international network of distribution partners, we provide support and advice to customers they are. Tensar started manufacturing geosynthetic products in 1982 in the United Kingdom and currently, we have 4 manufacturing facilities across the world.

Tensar has a strong team of experts in geotechnical, material science, and product testing & development which is working on developing sustainable, safe, and improved-performance geosynthetic products and applications.

Please find the link to our company website to gather some more information.
https://www.tensarinternational.com/

Tensar experts are already council members in several prestigious bodies like the International Geosynthetic Society (IGS) and the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE). In India, we are a member of the IRC sub-group of the H-4 committee for revision of IRC SP-59:2020 standard for "Use of geosynthetics in flexible pavements".
We assure, constructive participation in the development/revision of BIS standards with a global perspective on the latest geosynthetic products and applications.
Looking forward to associating with Bureau of Indian Standard (BIS).

We are pleased to introduce about our company in brief as below:
Tensar International is a world leader and expert in technology driven solutions for soil stabilisation, pavement optimisation and RS Wall etc. The company is a privately-owned
company headquartered in Atlanta, Georgia.
Tensar International supplies geosynthetic products and provides proven practical

solutions for poor soil conditions affecting the cost of roads, railways and paved areas. The company also offers products for earth retaining walls and slopes, subgrade improvement and stabilisation, foundations, reinforcement of asphalt to extend pavement life and erosion protection products for soil slopes and waterways.

With over 30 years of experience in developing, manufacturing and designing innovative, sustainable construction solutions as an alternative to traditional methods, Tensar geogrid and geotextile products and systems have been rigorously tested and studied by leading universities, independent laboratories and national authorities.

We are pleased to enclose brochure of Tensar's Geosynthetics products and applications in Civil Engineering , Sub grade stabilisation as well as Tensar Tech Stratum for your ready reference.

Thanks and Regards,
Kalpesh Jain| Sales Manager – Application

ANNEX 5
(*Item* 4.1)

SUMMARY OF ACTIONS TAKEN ON THE DECISIONS TAKEN IN THE LAST AND PREVIOUS MEETING

Item No.	Decision Taken	Action Taken
2	Review of composition of TXD 30	Updated composition of TXD 30 is given in Annex 3.
4.1	**COMMENTS ON PUBLISHED INDIAN STANDARDS** The committee constituted a panel for formulation of Indian Standard on 'Geotextiles for separation/filtration applications in railway formation' and 'Geogrids for reinforcement/stabilization applications in railway formation' after deliberating on comments received from RDSO, Lucknow on IS 17371 : 2020 and 16391 : 2015.	First panel meeting was convened on 04 March, 2023 physically at IIT, Gandhnagar.
4.2	**COMMENTS ON PUBLISHED INDIAN STANDARDS** **(**IS 16654 : 2017 Geosynthetics - Polypropylene multifilament woven geobags for coastal and waterways protection – Specification**)** After deliberation on the comments received from Ministry of Textiles, New Delhi, the committee decided Shri Saurabh Vyas, Techfab (India) Industries Ltd., Gujarat shall provide the test results/performance requirements for 'Polyester woven geobags used in coastal and waterways protection' for discussion.	Inputs are awaited.
4.3	**COMMENTS ON PUBLISHED INDIAN STANDARDS** **(**IS 16362 : 2020 Geosynthetics – Geotextiles used in subgrade stabilization in pavement structures – Specification (first revision)**)** The committee decided to issue an amendment to IS 16362 : 2020 under wide circulation for a period of 2 months for eliciting technical comments from stakeholders addressing the durability test.	An amendment to IS16362 : 2020 was issued under wide circulation. Coming for discussion under Agenda Item **5.1**.

4.4	**COMMENTS ON PUBLISHED INDIAN STANDARDS (**IS 17371 : 2020 and IS 17373 : 2020) The committee deliberated on the queries received from Surat branch office (SUBO), BIS, and decided to issue an amendment to IS 17371 : 2020 and IS 17373 : 2020 addressing the queries.	Amendments were issued and have been published as A1 to IS 17371 : 2020 and A1 to 17373 : 2020.
4.5	**COMMENTS ON PUBLISHED INDIAN STANDARDS (**IS 17483 (Part 1) : 2020 Geocells - Part 1 Load Bearing Application' and 'IS 17483 (Part 2) : 2020 Geocells - Part 2 Slope Erosion Protection Application') The committee deliberated on the comments received from Strata Geosystems Pvt. Ltd., Mumbai and Central Marks Department, BIS and decided to issue an amendment to IS 17483 (Part 1) : 2020 and IS 17483 (Part 2) : 2020.	Under publication
5.1	**DRAFT STANDARDS/AMENDMENT FOR FINALIZATION** The committee finalized the following draft amendment for publication 'Amendment no.1 to IS 16653 : 2017 Geosynthetics — Needle Punched Nonwoven Geobags for Coastal And Waterways Protection — Specification'	Under publication
5.2	**DRAFT STANDARDS/AMENDMENT FOR FINALIZATION** The committee finalized the draft Indian Standard on 'Geosynthetics — Prefabricated Vertical Drains for Quick Consolidation for Very Soft Plastic Soil — Specification [Doc. TXD 30 (19403)] for publication.	Under publication
5.3	**DRAFT STANDARDS/AMENDMENT FOR FINALIZATION** The committee finalized the draft Indian Standard on 'Geosynthetic Reinforced Soil Structures — Code of Practice' [Doc TXD 30 (20465)]' for publication.	Under publication

6.1	**PRELIMINARY DRAFTS UNDER TXD 30** **Geotextile Tubes for Coastal and Waterways Protection** The committee decided to issue that draft Indian Standard under wide circulation after incorporating the changes as decided under item **6.1** of minutes 28th meeting.for a period of 2 months for eliciting technical comments.	The draft Indian Standard was issued in wide circulation on 10 July 2023.
6.2	**Specification for geosynthetic in bitumen layers for flexible pavements** In the last meeting committee decided that queries raised by committee have not been addressed and decided as follows: i) Test requirements given in Table 1 to 5 shall be validated from a NABL accredited third-party laboratory. ii) Installation guidelines shall be incorporated for geosynthetic in bitumen layers for flexible pavements in the draft.	Inputs are awaited.
6.3	**Coir nonwoven stitched composite geo-textiles** In last meeting the committee decided that the revised working draft shall be prepared by the panel constituted for the purpose after incorporating changes as decided under item **6.3** of minutes 28th meeting.	Panel Meeting is to be convened.
7	**NEW WORK ITEM PROPOSAL** The committee constituted a panel for formulation of Indian Standard on the following subjects as identified in SNAP 2022-27 under the domain of TXD 30: a) Drainage Composite b) Rockfall protection nets c) Geosynthetic clay liners d) Textiles Fabric impregnated with cement for erosion control e) Woven and knitted geotextiles for all subgrade stabilization f) Geocomposite strips	A panel meeting was held on 26 May, 2023.

8	**REVIEW OF STANDARDS** The committee considered the list of pre-2000 standards and standards due for review after deliberations decided to reaffirm the standards due for review for a period of 5 years and further decided to circulate the word file of pre- 2000 standards to committee members for sharing their comments/technical inputs.	As decided by the committee Standards due for review was reaffirmed for a period of 5 years. Pre-2000 standards are coming for discussion under Agenda Item **8.2**.

ANNEX 6
(*Items* 5.1)

DRAFT FOR COMMENTS ONLY

Doc. No: TXD 30 (21617) WC
December 2022

BUREAU OF INDIAN STANDARDS

Draft **AMENDMENT NO. 1 DECEMBER 2022**
TO
IS 16362 : 2020 GEOSYNTHETICS — GEOTEXTILES USED IN SUBGRADE STABILIZATION IN PAVEMENT STRUCTURES — SPECIFICATION (*first revision*)

Last date for receipt of comment is **25 February 2023**

(*Page* 3, *Table* 1, *Notes*) — Insert the following new Note 5:

'**5** For durability tests having a range of products identical except for mass per area, it is sufficient to subject only the product with the lowest mass per area to the test. The results of the test may be applied for the other products in the range, unless they have been tested separately.'

(TXD 30)

ANNEX 7
(*Item* 6.1)

COMMENTS ON IS 16362, IS 16391, IS 16392, IS16393, IS 16090:2013

Commentator: TECHFAB INDIA PVT. LTD.

Comment:

COMMENT ON 'IS 16362, IS 16391, IS 6392, IS16393'.

Sl.No.	Clause	Proposed Change	Justification
1	-	NEED TO AMMALGAMATE IS16362, IS16391, IS16392 & IS16393 IN SINGLE BIS IS STD. INSTEAD OF 04 STD.	As per MoRTH IRC SP 59 (Guidelines for Use of Geosynthetics in Road Pavements and Associated Works), Non-Woven/Woven Geotextiles for separation, erosion control, sub-surface drainage, cushioning and stabilization are covered under three types: Type I, II and III. Depending upon the condition of soil, the user can choose the Geotextile to be used. Further, under AASHTO (American Association of State Highway and Transportation Officials) Specification M288 and BS EN 13250 (Geotextiles and geotextile related products-Characteristics required for use in the construction of railways) .all Non-Woven/Woven Geotextiles for separation, erosion

			control, sub-surface drainage, cushioning and stabilization under one standard.

IS 16391:2015 GEOSYNTHETICS- GEOTEXTILES USED IN SUB-GRADE SEPARATION IN PAVEMENT STRUCTURES-SPECIFICATION

<table>
<tr><th>Sl.No.</th><th>Clause</th><th>Proposed Change</th><th>Justification</th></tr>
<tr><td>1</td><td>4.2 Requirements</td><td>As per the clause, it has been stated that "Polyolefin material shall be made resistant to ultraviolet light by adding 2-3 percent carbon black"

The clause may be modified as follows:-

"Polyolefin material shall be made resistant to ultraviolet light by adding suitable materials such as carbon black, UV Master Batch etc."</td><td>As per industrial practice, Geotextiles as per IS 16391:2015 are supplied both in black and white colour.

Specifying addition of carbon black only restricts supply of Geotextiles in black colour only.</td></tr>
<tr><td>2</td><td>Table 1 Requirements of Geotextiles for Separation Applications Sl.No. g) CBR Puncture Strength</td><td>The specified requirements may be modified as follows to align them with the specified test method i.e. IS 16078:-

<table><tr><td>Class 1</td><td>Class 1</td><td>Class 2</td><td>Class 2</td></tr><tr><td><50%</td><td>≥50%</td><td><50%</td><td>≥50%</td></tr><tr><td>2250</td><td>1400</td><td>1700</td><td>1000</td></tr></table></td><td>Presently, the values of CBR Puncture Strength mentioned in the Table are as per the testing method specified in IS 13162 (Part 4) wherein a brass cone having a point angle of 45° tapering to a maximum of 50±0.1 mm shall be used for puncture.

However, the test method mentioned in the table is IS 16078 as per which a stainless steel cylindrical plunger of diameter 50±0.5 mm is to be used for</td></tr>
</table>

			puncture.

COMMENTS ON ' IS 16392:2015 GEOSYNTHETICS- GEOTEXTILES FOR PERMANENT EROSION CONTROL IN HARD ARMOR SYSTEMS- SPECIFICATION'

Sl.No.	Clause	Proposed Change	Justification
1	4.2 Requirements	As per the clause, it has been stated that "*Polyolefin material shall be made resistant to ultraviolet light by adding 2-3 percent carbon black"* The clause may be modified as follows:- "*Polyolefin material shall be made resistant to ultraviolet light by adding suitable materials such as carbon black, UV Master Batch etc."*	As per industrial practice, Geotextiles as per IS 16392:2015 are supplied both in black and white colour. Specifying addition of carbon black only restricts supply of Geotextiles in black colour only.
2	Table 1 Requirements of Geotextiles for Permanent Erosion Control Applications i) Index Properties Sl.No. h) CBR Puncture Strength	The specified requirements may be modified as follows to align them with the specified test method i.e. IS 16078:- Class 1 | Class 1 | Class 2 | Class 2 <50% | ≥50% | <50% | ≥50% 2250 | 1400 | 1700 | 1000	Presently, the values of CBR Puncture Strength mentioned in the Table are as per the testing method specified in IS 13162 (Part 4) wherein a brass cone having a point angle of 45° tapering to a maximum of 50±0.1 mm shall be used for puncture. However, the test method mentioned in the table is IS 16078 as per which a stainless steel cylindrical plunger of diameter 50±0.5 mm is to be used for puncture.
3	Table 1 Requirements of Geotextiles for	The requirement may be removed from the Table since	In situ Soil Passing is a requirements for sieve

	Permanent Erosion Control Applications ii) Structural Integrity Properties Sl.No.i) In situ Soil Passing 0.075 mm(200 IS Sieve), percent	the requirement is not a requirement of the Geotextile.	analysis of the soil where the Geotextile is to be installed. Based upon the structure of the soil (Coarse, Medium, Fine), the suitable Geotextile is chosen for installation.
4	Table 1 Requirements of Geotextiles for Permanent Erosion Control Applications iii) Durability Properties Sl.No.d) Ultraviolet Stability at 500 h, retained strength, percent of original strength	The requirements of Geotextiles having Elongation ≥50% have not been specified. It is proposed that the requirement may be specified as "—".	It appears to be a editorial mistake as in case of similar products such as IS 16391 and IS 16393, the requirement has been specified as "—".

COMMENTS ON 'IS 16393:2015 GEOSYNTHETICS- GEOTEXTILES USED IN SUBSURFACE DRAINAGE APPLICATION-SPECIFICATION'

Sl.No.	CLAUSE	PROPOSED CHANGE	JUSTIFICATION
1	4.2 Requirements	The following may be added in the existing clause :- "*Polyolefin material shall be made resistant to ultraviolet light by adding suitable materials such as carbon black, UV Master Batch etc."*	In case of similar products such as IS 16391, IS 16392 etc. it has been specified at cl.4.2. that "*Polyolefin material shall be made resistant to ultraviolet light by adding 2-3 percent carbon black"*. It appears to be an editorial mistake that the requirement of UV retention has been excluded from IS 16393.

<table>
<tr><td></td><td></td><td></td><td>Further, as per industrial practice, Geotextiles are supplied both in black and white colour.

Specifying addition of carbon black only restricts supply of Geotextiles in black colour only.</td></tr>
<tr><td>2</td><td>Table 1
Requirements of Geotextiles for Subsurface Drainage Application
i) Index Properties
Sl.No. h) CBR Puncture Strength</td><td>The specified requirements may be modified as follows to align them with the specified test method i.e. IS 16078:-

<table><tr><td>Class 1</td><td>Class 1</td><td>Class 2</td><td>Class 2</td></tr><tr><td><50%</td><td>≥50%</td><td><50%</td><td>≥50%</td></tr><tr><td>2250</td><td>1400</td><td>1700</td><td>1000</td></tr></table></td><td>Presently, the values of CBR Puncture Strength mentioned in the Table are as per the testing method specified in IS 13162 (Part 4) wherein a brass cone having a point angle of 45° tapering to a maximum of 50±0.1 mm shall be used for puncture.

However, the test method mentioned in the table is IS 16078 as per which a stainless steel cylindrical plunger of diameter 50±0.5 mm is to be used for puncture.</td></tr>
<tr><td>3</td><td>Table 1
Requirements of Geotextiles for Geotextiles for Subsurface Drainage Application
ii) Structural Integrity Properties
Sl.No.i) In situ Soil Passing 0.075 mm(200</td><td>The requirement may be removed from the Table since the requirement is not a requirement of the Geotextile.</td><td>In situ Soil Passing is a requirements for sieve analysis of the soil where the Geotextile is to be installed. Based upon the structure of the soil (Coarse, Medium, Fine), the suitable Geotextile is chosen for installation.</td></tr>
</table>

	IS Sieve), percent		

COMMENTS ON 'IS 16362:2020 GEOSYNTHETICS- GEOTEXTILES USED IN SUBSURFACE DRAINAGE APPLICATION-SPECIFICATION'

Sl.No.	Clause	Proposed Change	Justification
1	4.2 Requirements	As per the clause, it has been stated that "*Polyolefin material shall be made resistant to ultraviolet light by adding 2-3 percent carbon black"* The clause may be modified as follows:- "*Polyolefin material shall be made resistant to ultraviolet light by adding suitable materials such as carbon black, UV Master Batch etc."*	As per industrial practice, Geotextiles as per IS 16362:2020 are supplied both in black and white colour. Specifying addition of carbon black only restricts supply of Geotextiles in black colour only.

COMMENTS ON 'IS 16090:2013 GEO-SYNTHETICS — GEO-TEXTILES USED AS PROTECTION (OR CUSHIONING) MATERIALS — SPECIFICATION'

Sl.No.	Clause	Proposed Change	Justification
1	4.3 Requirements	As per the clause, it has been stated that "*Polyolefin material shall be made resistant to ultraviolet light by adding 2-3 percent carbon black"* The clause may be modified as follows:- "*Polyolefin material shall be made resistant to ultraviolet light by adding suitable materials*	As per industrial practice, Geotextiles as per IS 16090:2013 are supplied both in black and white colour. Specifying addition of carbon black only restricts supply of Geotextiles in black colour only.

		such as carbon black, UV Master Batch etc."	

Commentator: Shri Rajendra Ghadge, Garware Technical Fibres Ltd. , Pune

Comment:

Dear Sir,

Greetings from Garware Technical Fibres Ltd.

This is regarding Quality Control orders issued recently for Geotextiles. When going through contents of Mandatory Indian standards, lS 16090:2013, lS 16362:2015, lS 16391 :2015, IS 16392:2015, lS 16393:2015, it is seen that

1. Most of the Index Properties and Structural integrity properties tests are common for all the standards.
2. Durability properties like Installation damage, UV Resistance are also common
3. Most of the range of Geotextiles are meeting the requirements of all the above standards if these standards considered separately for license, for each product manufacturers has to do same tests on the products for different licenses.

Also the cost will be very high for each license as durability tests are involved. In this regard,

1. Can the license be common for all the standards mentioning the application of products?

2. Can one product be tested for different standards and confirm the properties? Kindly advise. Thanks.

Warm Regards,

Rajendra K. Ghadge

Commentator: SUBO/BTRA, Mumbai

Comment:

TXD may please refer trailing email received from BTRA. In this regard, it is to inform that
SUBO sent samples of Geotextiles, non-woven, Class I as per IS 16391:2015 and IS

16393:2015 (both all India first applications) for independent testing to BTRA. Lab has not
reported test results for coefficient for Direct shear and pullout resistance and clarification
given through trailing email.
Below mail is being forwarded for consideration by concerned sectional committee.
Shrishti Dixit
Sc D
SUBO

From: geotech@btraindia.com
To: "Shrishti Dixit" <shrishti.dixit@bis.gov.in>, btloffice@btraindia.com, mktg@btraindia.com
Sent: Wednesday, June 7, 2023 5:05:44 PM
Subject: Regarding Geotextile Test report

Dear Madam,

As we know, functions for Nonwoven Geotextile are, Drainage, filtration, and Separation.
Tests to determine the coefficient for Direct shear and pullout resistance are needed for
the reinforcement function, which are for Geogrid and woven geotextile and not applicable
for Nonwoven Geotextile.
Practically also, due to elongation is on a higher side, more than 50%, for Nonwoven Geotextile, tests for Direct shear and pullout resistance are not possible to achieve the values mentioned in respective code.
Hence it is required to ignore these tests for evaluation and amendment in the standards
are warranted.
For this reason we have not added the values for those two parameters for your consideration and necessary action.
--
Regards,
Dr. Prasanta.K. Panda
Senior Scientist
Centre of Excellence for Geotech
The Bombay Textile Research Association,
LBS Marg, Ghatkopar (W), MUMBAI-400086
Ph 022-62023636

Commentator: CMD-2, BIS

Comment:

Sir

This has reference to the above.

Reference is also invited to the above ISS for Geotextiles i.e. IS 16391, IS 16392, IS 16393, IS 16362 for which All India First applications are in process.
In the above standards, clarification is required for the following parameters
a) Sewn Seam Strength : This parameter is there in all these standards. However, during processing of the applications, it was learnt that the product is being supplied by the manufacturer without any seam. Accordingly, this requirement could not be tested either in the factory or in the lab since there was no seam. It was learnt that the seam is sewn at the stage of installation and as such the requirement will not hold on the geotextiles supplied without seam. Accordingly, it is intended to grant certification considering that this requirement will not hold applicable for this product as it without seam. It is requested to please confirm the same.
b) In-situ soil passing 0.075 mm sieve (IS 200 sieve) : In situ Soil Passing is a requirement for sieve analysis of the soil where the Geotextile is to be installed. Based upon the structure of the soil (Coarse, Medium, Fine), the suitable Geotextile is chosen for installation. The requirement will not apply here since the requirement is not a requirement of the Geotextile. Accordingly, it is intended to grant certification considering that this requirement will not hold applicable for this product . It is requested to please confirm the same.
TXD is requested to please respond urgently on these matters so that the grant of All India First licences in these cases is not delayed.

सादर/Regards

आदित्य दास/ Aditya Das

वैज्ञानिक डी/संयुक्युत निदेशक, / Scientist D/Jt. Director,

केंद्रीय मुहर विभाग-2/ Central Marks Department-2,

भारतीय मानक ब्यूरो /Bureau of Indian Standards

ANNEX 8
(*Item* 6.2)

A) COMMENT ON 'IS 17371 : 2020 GEOSYNTHETICS – GEOGRIDS FOR FLEXIBLE PAVEMENTS – SPECIFICATION'

Commentator: Tensar Geosynthetics India Pvt Ltd., Mumbai
Comment:

Subject: - Request for modification of IS 17371 specifications to make it inclusive for all types of geogrids

Dear Sir,

We, Tensar Geosynthetics India Private Limited are a fully owned subsidiary of Tensar International United Kingdom. Tensar is a world-leading geosynthetic manufacturer and provider of ground stabilization and soil reinforcement solutions.

We write to you regarding IS 17371:2020 - Geosynthetics Geogrids for Flexible Pavements - Specification and wish to submit a few observations related to it.

The code is recommending specification for the geogrid to be used in Flexible pavement, but it describes in cl.3.1. the Geogrid as "A biaxial polymeric grid..." this definition of geogrid is not in compliance with the ISO definition which is generic and defines as below:

2.2.1.2.1
geogrid
GGR
planar, polymeric structure consisting of a regular open network of integrally connected, tensile elements, which may be linked by extrusion, bonding, or interlooping or interlacing, whose openings are larger than the constituents

Also, the definition does not adhere to IS 13321:1992 which is the reference code for definitions as mentioned in cl. 3 of IS 17371:2020. IS 13321 defines geogrid in a generic way as presented below.

2.7.3 *Geogrid*

A deformed or nondeformed netlike polymeric material used with foundation, soil, rock, earth, or any other geotechnical engineering-related material as an integral part of the human-made project structure or system.

The specifications/ requirements of geogrid to be used in the flexible pavement are recommended in the IS 17371. These specifications are found to be not in compliance with the IRC SP 59 2019 recommendations presented below:

IRC:SP:59-2019

Table 4.5 Minimum Requirements of Geogrid for Base & Sub-base Stabilization of Flexible Pavement

Property	Test Method	Unit	Requirement
Stiffness at 0.5% strain	IS 13162 Part 5/ISO 10319	kN/m	≥350; both in machine and cross-machine direction
Tensile strength @2% strain	IS 13162 Part 5/ISO 10319/ ASTM D6637	kN/m	≥15 % of T_{ult}; both in machine and cross-machine direction
Tensile strength @5% strain	IS 13162 Part 5/ISO 10319/ ASTM D6637	kN/m	≥20 % of T_{ult}; both in machine and cross-machine direction
Junction efficiency for extruded geogrids	GRI-GG2-87 or ASTM-WK 14256	-	90 % of rib ultimate tensile strength
Ultraviolet stability	IS 13162 Part 2/ASTM D4355	-	70% after 500 hrs exposure

Note:

(1) All numerical values in the Table represent MARV in the specified direction.

(2) All geogrids shall be placed along machine direction parallel to the centre line of roadway alignment.

At present many government pavement works are being carried out with geogrids fulfilling these IRC SP 59 2019 specifications. Hence having different specifications in IS 17371 and making it mandatory to get certification based on these specifications will be rendering these ongoing works invalid as the geogrid may not meet all the requirements of IS 17371.

We would like you to kindly note that these requirements of IS 17371 may not be fulfilled by the geogrids but the performance of the pavement will not be affected as these properties do not affect the performance. Therefore, they were not included in the IRC SP 59 2019. It may so happen that the geogrid fulfilling all the requirements present right now in IS 17371 may still not perform in the pavement.

We request you to kindly look into addressing these concerning issues to make the code more inclusive to all geogrids being used in pavements at present.

Thanking you in anticipation.

For Tensar Geosynthetics India Private Limited

Mangesh Shinde
Territory Director – East Asia and India Mob : +91 98 193 84180
E-mail : mshinde@tensar.in

B) COMMENT ON 'IS 17373 : 2020 GEOSYNTHETICS – GEOGRIDS USED IN REINFORCED SOIL RETAINING STRUCTURES – SPECIFICATION

Commentator: Tensar Geosynthetics India Pvt Ltd., Mumbai
Comment:

Ref :
Tensar/2023
/016 Date :
21st June
2023

To,
Shri J K Gupta
Head — Textile Department
TXD, Bureau of Indian
Standards New Delhi

Subject: Request for modification of IS 17373:2020 specifications to make it inclusive for all types of geogrids

Dear Sir,

We, Tensar Geosynthetics India Private Limited are a fully owned subsidiary of Tensar International United Kingdom. Tensar is a world-leading geosynthetic manufacturer and provider of ground stabilization and soil reinforcement solutions.

We write to you regarding IS 17373:2020 — Geosynthetics - Geogrids used in Reinforced Soil Retaining Structures - Specification and wish to submit a few observations related to it.

The definition of geogrid provided in d.3.1 of IS 17373:2020 describe it as "A uniaxial/biaxial polymeric grid..." this definition of geogrid is not in compliance with the ISO definition which is generic, refer below:

> 2.2.1.2.1
> geogrid
> GGR
> planar, polymeric structure consisting of a regular open network of integrally connected, tensile elements, which may be linked by extrusion, bonding, or interlooping or Interlacing, whose openings are larger than the constituents

Also, the definition in c1.3.1 of IS 17373:2020 does not adhere to IS 13321:1992 which is the reference code for definitions as mentioned in ci. 3 of IS 17371:2020. IS 13321 defines geogrid in a generic way as shown below.

2.7.3 *Geogrid*

A deformed or nondeformed netlike polymeric material used with foundation, soil, rock, earth, or any other geotechnical engineering-related material as an integral part of the human-made project structure or system.

The clause 4 of IS 17373 describes three types of geogrids, all of them manufactured from Polyester as raw material. Thus, the specification code in its current form ignores the other type i.e. geogrids manufactured using High Density Polyethylene (HDPE) as raw material. HDPE geogrids are being used as soil reinforcements in Reinforced Soil Structures since the 1980s and several structures are already constructed and are under construction in India.

There are many Indian (IRC, RDSO etc.) and international (FHWA, GEO guide etc.) standards which include HDPE geogrids and recommend the use of these types of geogrids in Reinforced soils walls and slopes.

The provisions of Is 17373 code specification will prevent the use of HDPE geogrids in ongoing Indian projects and deny the designers options to choose appropriate geogrids for various applications of soil retaining structures.

It is well known that HDPE geog rids are having better durability against aggressive fills (with the ability to withstand a wide pH range) compared to Polyester geogrids. If only Polyester geogrids are allowed, then there will be several applications/site conditions where reinforced soil structures cannot be opted as HDPE geogrids are barred by the 1517373 standard.

We wish to highlight a few of the many scenarios where HDPE geogrids are preferred over other types of geogrids as below

1. In the case of railway embankments (with Reinforced Soil walls *and* slopes), HDPE geogrids are preferred as soil reinforcements, as the freight trains carry different types of aggressive liquids and there is a real risk of spillage of such liquids on the embankment and percolation into the reinforced soil fill affecting the soil reinforcements. Under such conditions, the HDPE geogrid reinforcements are not affected, and the serviceability of the embankment structure is ensured.

2. The use of HDPE geogrids for hazardous waste containment dykes, tailing dam structures, and landfills is crucial due their high durability in aggressive fills.

3, HDPE geogrids can be cast into the concrete facia panels/blocks (providing a positive mechanical connection) offering versatility in choice of facia elements for reinforced soils structures exposed to salt water, aggressive fills, and hazardous wastes. This is not possible with Polyester geogrids.

In view of the above, we suggest the BIS IS 17373 code specification should allow for all types of reinforcements and the choice of selection of type geogrid (PET or HDPE) should be left to engineers depending on the project-specific requirements.

We request you to kindly look into addressing these concerning issues to make the code more inclusive to all geogrids being used Reinforced Soil Structures at present.

For Tensar Geosynthetics India Private Limited,

Mangesh Shin
Territory Director — East Asia and India
Mob : +91 98 193 84180
E-mail : mshinde@tensar.in

C) COMMENT ON 'IS 17371 : 2020 GEOSYNTHETICS – GEOGRIDS FOR FLEXIBLE PAVEMENTS – SPECIFICATION'

Commentator: Dr. Ratnakar Mahajan, Macaferri Environmental Solutions Pvt Ltd, Navi Mumbai
Comment:

Dear Sir,

This has reference to agenda for TC meeting on 20-07-2023.

Recently, we had applied for licence for geogrids as per IS 17373:2020. During this process, we got licence for Type 3 geogrid. However, type 2 geogrid licence is not granted due to small error in the standard and need amendment.

With reference to the aforementioned subject, we would like to bring to your attention that aperture size specified for Type 2 Geogrid, that is, Polyester bonded geogrids having tensile strength in machine direction up to 200 kN/m , is from 50 to 500 mm in machine direction and from 10 to 100 mm in cross machine direction.

We manufacture these Geogrids Type 2 and Type 3 which meets the requirements of the standard IS 17373:2020, at our factory Maccaferri Environmental Solutions Pvt. Ltd. D-40, M.I.D.C Ranjangaon, Pune-Nagar Road, Tal.-Shirur, Pune, Maharashtra, India. 412220.

Currently we manufacture the Type 2 Geogrids with the aperture size of 940 mm in the machine direction (MD) and 135 mm in the cross-machine direction(CD)

Considering the current industry practice, where in Type 2 Geogrids supplied so far from our factory have the aperture size of 940 mm in MD (Pitch of 1000 mm). Aperture size of 135 in CD is based on the warps used in the making of these Geogrids .

Hence, we would like to request you to make the amendments to the aperture size of Type 2 Geogrids.

Proposed Amendments :

Aperture size in machine direction: 50 mm to 1000 mm

Aperture size in cross machine direction: 10 mm to 150 mm

Also, we would like to request you to amend the tolerance on the roll width of Geogrids from +/-10 mm to +/- 100 mm as +/-10 mm is not practical to achieve in the flexible Geogrids.

Regards,

Dr. Ratnakar R. Mahajan

Regional Technical Manager – ISEAP (India, SouthEast Asia and Pacific)

Maccaferri Environmental Solutions Pvt. Ltd.

ANNEX 9
(*Item* 6.3)

MANAK MANTHAN COMMENT ON 'IS 16654 : 2017 GEOSYNTHETICS - POLYPROPYLENE MULTIFILAMENT WOVEN GEOBAGS FOR COASTAL AND WATERWAYS PROTECTION – SPECIFICATION'FROM GUWAHATI BRANCH OFFICE (GHBO)

Commentator: CIPET,Guwahati
Comment:

New Standard proposed by participant for Polysterene Geo Bags.

Polysterene Geo Bags are being sent to CIPET for Testing as per customer standard since it is being used widely new standard may be formulated

ANNEX 10
(*Item* 6.4)

Attached Separately

ANNEX 11
(*Item* 8.2)

TEST REPORT OF 'IS 14986 : GUIDELINES FOR APPLICATION OF JUTE GEOTEXTILE FOR RAIN WATER EROSION CONTROL IN ROAD AND RAILWAY EMBANKMENTS AND HILL SLOPES'

●●●

INDIAN JUTE INDUSTRIES' RESEARCH ASSOCIATION

To
Indian Jute Mills Association,
Royal Exchange,
6, Netaji Subhas Road,

Date: 12.12.2022

Reference - Soil Saver Received from Birla Jute Mill, Reliance Jute Mill,

Gloster Limited Report N cs.:- TT / 64/22 - 23

Test Results

SI. No.	Test Parameters	Birla Jute Mill (500GSM)	Reliance	Valu Gloster 292 GSM	Gloster 500 GSM	Gloster 730GSM	Standard Followed
	Width(cm)	122.2	122.0	123.0	122.0	122.0	IS 1954
	Weight per unit area at 20(ND	489.0	715.07	283.08	551.22	728.29	1S2387
	Ends X Picks /dm	7 X 4.6	7X7	11 X 13	6.8 X 5	7 X 7	131963
	Thickness(mm)	4.59	4.74	1.9	4.51	5.53	1S7702
	Aperture size(mm)	12.7 X 20.3	12 X 12.5	8.5 X 7.5	12.8 X 19	13 X 13	IS 2405
	Strength (N/10cm)) Warp Way	1319.5 719.9	1489.3 1257.6	1054.0 954.0	1937.0 1172.0	1967.0 1718.0	IS 1969
7	Elongation (%) Warp Way	5.0 4.0	4.0 5.0	2.5 4.5	4.04 5.54	4.36 5.50	

Note - For 5COGSM & 730GSM soil saver strength is done as per IS 14986

Notes:

a) Th is report is for your private use only and should not be used for publicity or litigation.
b) Au thenticity of this report could be validated with the office copy at IJIRA, Kolkata.
c) Ph otocopies of this report should not be taken and circulated for commercial purpose.
d) Above test results have been obtained from sample supplied by Birla Jute, Reliance Gloster Limited.
e) Test report shall not be reproduced in full without written approval of the institute.
f) All tensile tests are carried out at 65 ± 2% RH and 27 ± 2 °C temperature.
1.

(Soumita Cho

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Test
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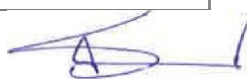
17, Taratala Road, Kolkata - 700 088
Telephone : + 91 33 2401 - 4615/17/19, + 91 33 66269 200 / 66269 229 / 66269 241 FAX : + 91 33 2401 - 4298 / 4621 E-mail :



ANNEX 12

(*Item* 8.2)

LIST OF STANDARDS DUE FOR REVIEW

Sl. No	IS Number	IS Title	Last reaffirmation year	Due date
1	IS 13325 : 1992	Determination of tensile properties of extruded polymer geogrtds using the wide strip - Test method	2019	February, 2024
2	IS 13326 (Part 1) : 1992	Evaluation of interface friction between geosynthetics and soil method of test: Part 1 modified direct shear technique	2019	February, 2024
3	IS 14293 : 1995	Geotextiles - Method of test for trapezoid tearing strength	2019	February, 2024
4	IS 14294 : 1995	Geotextiles - Method for determination of apparent opening size by dry sieving technique	2019	February, 2024
5	IS 14324 : 1995	Geotextiles – Methods of test for determination of water permeability – Permittivity	2019	February, 2024
6	IS 14706 : 1999	Geotextiles - Sampling and preparation of test specimens	2019	February, 2024
7	IS 14714 : 1999	Geotextiles - Determination of abrasion resistance	2019	February, 2024
8	IS 15060 : 2018/ISO 10321:2008	Geosynthetics – Tensile test for joint seams by wide-width strip method (first revision)	0	May, 2023
9	IS 15871 : 2009	Use of coir geotextiles (Coir BHOOVASTRA) in unpaved roads – Guidelines	2019	February, 2024
10	IS 15910 : 2010	Geosynthetics - for highways - Specification	2019	February, 2024
11	IS 16237 : 2014	Geo-synthetics – Method for determination of apparent opening size by wet sieving	2019	February, 2024
12	IS 17179 : 2019/ISO 12958 : 2010	Geotextiles and geotextile-related products – Determination of water flow capacity in their plane	0	March, 2024

ANNEX 13
(*Item* 8.2)

LIST OF PRE- 2000 STANDARDS UNDER TXD 30:

Sl. No.	IS Number	Title
1	IS 13325 : 1992	Determination of tensile properties of extruded polymer geogrtds using the wide strip - Test method
2	IS 13326 : Part 1 : 1992	Evaluation of interface friction between geosynthetics and soil method of test: Part 1 modified direct shear technique
3	IS 14293 : 1995	Geotextiles - Method of test for trapezoid tearing strength
4	IS 14294 : 1995	Geotextiles - Method for determination of apparent opening size by dry sieving technique
5	IS 14324 : 1995	Geotextiles – Methods of test for determination of water permeability – Permittivity
6	IS 14706 : 1999	Geotextiles - Sampling and preparation of test specimens
7	IS 14714 : 1999	Geotextiles - Determination of abrasion resistance
8	IS 13162 : Part 2 : 1991	Geotextiles – Methods of test Part 2 Determination of resistance to exposure of ultraviolet light and water (Xenon-arc type apparatus)
9	IS 13162 : Part 4 : 1992	Geotextiles – Methods of test Part 4 Determination of puncture resistance by falling cone method