

केन्द्रीय मुहर विभाग-2

संदर्भ -: केमूवी-2/16:16392

08 02 2024

विषय: IS 16392:2015 के amendment no. 1 के अनुपालन के दिशा निर्देश

यह उपरोक्त विषय के संदर्भ में है।

सक्षम अधिकारी द्वारा अनुमोदित दिशानिर्देश अनुपालन हेतु संलग्न है।

सभी क्षेत्रीय/शाखा कार्यालयों से अनुरोध है की दिशानिर्देशों का तत्काल प्रभाव से अनुपालन सुनिश्चित करें।

आदित्य दास
वैज्ञानिक D

प्रमुख (केमूवी 2)

सभी क्षेत्रीय/शाखाकार्यालय/प्रयोगशालाएँ/TXD/LRMD

CENTRAL MARKS DEPARTMENT-2

Our Ref: CMD-2/16:16392

08 02 2024

Subject: Guidelines for implementation of amendment no. 1 to IS 16392:2015

This has reference to the subject mentioned above.

The Competent Authority has approved the enclosed Guidelines for implementation.

All ROs/BOs are requested to ensure the implementation of the above Guidelines with immediate effect.

(Aditya Das)
Scientist D

Head (CMD-2)

All ROs/BOs/Labs/TXD/LRMD

CENTRAL MARKS DEPARTMENT-2

Our Ref: CMD-2/16: 16392

08 02 2024

Subject: Guidelines for implementation of amendment no. 1 to IS 16392:2015 (Geosynthetics - Geotextiles for permanent erosion control in hard armor systems - Specification)

1. Amendment no. 1 to IS 16392:2015 has been published. The last date of implementation of the amendment is **12 June 2024**.

2. The significant changes in the standard through this amendment as listed in the Table are given for the purpose of general guidance.

Clause No.	Change
4.2	The line "Polyolefin material shall be made resistant to ultraviolet light by adding 2 to 3 percent carbon black" has been changed to "Polyolefin material shall be UV stabilized by adding suitable UV stabilizer and/or carbon black. Polyolefin material, if manufactured by using carbon black shall contain 2 percent to 3 percent of carbon black by mass with satisfactory dispersion."
Table 1	<ul style="list-style-type: none">• A note has been added to specify that the sewn seam strength parameter shall be tested, when product is supplied with seam and to refer to IS 16345 for stitch and overlap seam requirements.• A note has been added regarding Structural integrity properties and requirement for In-situ soil passing 0.075 mm sieve (IS 200 sieve) has been removed• Requirements under durability properties for Pullout Interaction Coefficient, at 6 mm displacement, Normal load equal to 5 kPa and Coefficient of Direct Shear at peak geotextile shear strength, Normal load equal to 5 kPa, have been removed• Method of test for Resistance to installation damage, Percent retained strength, SC/SW/GP has been changed from ISO 10722 to IS 17420

3. Consequent upon the issuance of the amendment, the existing product manual has been revised which is being circulated separately through BIS website.

4. The guidelines for implementation of the amendment are given below:

A. LICENSEES:

- i) All Licensees shall implement the amendment by **12 June 2024**. Any difficulty in implementation shall be brought to the notice of CMD 2 at the earliest but in any case at least 30 days before the last date of implementation. BOs shall ensure that no Licences are under operation as per IS 16392:2015 without the amendment after **12 June 2024**. The status of implementation of the amendment shall be confirmed by Head (BO) to CMD-2 within two weeks of the last date of concurrent running.

- ii) Licensees shall submit evidence of conformity to the additional/modified requirements through In-house/Independent Test Reports as well as revised declaration of test equipment as per Form 2 (if applicable). Verification of implementation of the amendment, wherever required, shall be verified through a surveillance visit within 30 days of confirmation of implementation of the amendment to standard by licensee.
- iii) If the Licensee fails to complete all actions by **12 June 2024** it shall be dealt with as per the prevailing guidelines.

B. APPLICATIONS FOR GRANT OF LICENCE:

- i. Existing Applications where Sample has been submitted in the Laboratory/Test Report has been issued by the Laboratory may be processed as per the old Standard. However, if the Applicant is desirous of considering the Application as per the amended Standard, a declaration may be obtained from the Applicant to that effect and the Application may be processed accordingly. An undertaking shall from such Applicants also be obtained that if the sample fails while considering the provisions of the amended Standard, Licence will not be granted by BIS as per the old version.
- ii. Applications which are recorded henceforth may be processed as per the old Standard or the amended Standard. Processing of Applications as per the old Standard shall be permitted only up to **11 June 2024** and for such cases Applicant shall give a declaration that they will implement the amended Standard by **12 June 2024**.
- iii. Beyond **12 June 2024** no Licence shall be granted as per the old Standard.

C. CHANGE IN SCOPE OF LICENCE:

- i. For change in scope of licence, the relevant provisions as given above for Applicants shall apply.
- ii. However, processing of such applications for change in scope of licence as per the old Standard shall be permitted only up to the date of implementation of the amendment or up to **12 June 2024** whichever is earlier.

6. The above guidelines come into force with immediate effect.

Aditya Das
Sc. D

Head (CMD-2)
DDG (Certification)

AMENDMENT NO. 1 DECEMBER 2023

TO

IS 16392 : 2015 GEOSYNTHETICS — GEOTEXTILES FOR PERMANENT EROSION CONTROL IN HARD ARMOR SYSTEMS — SPECIFICATION

(Page 1, clause 4.2, third sentence) — Substitute the following for the existing sentence:

'Polyolefin material shall be UV stabilized by adding suitable UV stabilizer and/or carbon black. Polyolefin material, if manufactured by using carbon black shall contain 2 percent to 3 percent of carbon black by mass with satisfactory dispersion.'

(Page 3, Table 1) — Substitute the following for existing table:

Table 1 Requirements of Geotextiles for Permanent Erosion Control Applications

(Clauses 4.3 and 5.4)

SI No.	Characteristic(s)	Requirements				Method of Test, Ref to		
		Class 1		Class 2				
		Elongation < 50 percent	Elongation ≥ 50 percent	Elongation < 50 percent	Elongation ≥ 50 percent			
(1)	(2)	(3)	(4)	(5)	(6)	(7)		
i)	Index properties							
	a) Type of geotextile	←Woven/non-woven→		←Woven/non-woven→		—		
	b) Roll length, m, <i>Min</i>	←50 or 100 or as agreed→		←50 or 100 or as agreed→		IS 1954		
	c) Roll width, m, <i>Min</i>	←5.0 or as agreed→		←5.0 or as agreed→		IS 1954		
	d) Grab strength, N, <i>Min</i>	1 400	900	1 100	—	IS 16342		
	e) Sewn seam strength, N, <i>Min</i> (see Note 1)	1 200	810	990	—	IS 15060		
	f) Trapezoidal tear strength, N, <i>Min</i>	500	350	400	—	IS 14293		
	g) Abrasion strength, <i>Min</i> (see Note 2)	550	400	350	—	IS 14714		
	h) CBR puncture strength, N, <i>Min</i>	2 250	1 400	1 700	—	IS 16078		
	j) Burst strength, kPa, <i>Min</i>	3 500	1 700	2 700	—	IS 1966 (Part 2)		
ii)	Structural integrity properties: (see Note 3)					IS 1607		
	a) Permittivity, sec ⁻¹ , <i>Min</i>					IS 14324		
	1) For course soil	←	0.7	→	←	0.7	→	—
	2) For medium soil	←	0.2	→	←	0.2	→	—
	3) For fine soil	←	0.1	→	←	0.1	→	—
	b) Apparent opening size (AOS), mm, <i>Max</i>					IS 14294		
	1) For course soil	←	0.43	→	←	0.43	→	IS 13162 (Part 2)
	2) For medium soil	←	0.25	→	←	0.25	→	—
	3) For fine soil	←	0.22	→	←	0.22	→	—
iii)	Durability properties:							
	a) Resistance to installation damage, percent retained strength, SC/SW/GP (see Note 4), <i>Min</i>	←	95/93/90	→	←	95/93/90	→	IS 17420
	b) Ultraviolet stability at 500 h, retained strength, percent of original strength, <i>Min</i>	←	70	→	←	70	→	IS 13162 (Part 2)

Price Group 1

Amendment No. 1 to IS 16392 : 2015

NOTES

- 1 The parameter shall be tested when product is supplied with seam. Refer to IS 16344 for stitch and overlap seam requirements.
 - 2 After abrading the geotextiles for 250 cycles, the grab strength shall be calculated by the method specified in IS 16342.
 - 3 The structural integrity properties of geotextile is affected by the in-situ soil gradation. Geotextile fabric selection is determined by the presence of coarse, medium, or fine soil particles at the installation site. Soil classification into these categories is based on the percentage of particles passing through a 0.075 mm (200 mesh) sieve:
 - a) Course soil: In situ soil passing < 15 percent;
 - b) Medium soil: In situ soil passing 15 to 50 percent; and
 - c) Fine soil: In situ soil passing > 50 percent.
 - 4 Resistance to installation damage (loss of load capacity or structural integrity) when subjected to mechanical installation stress in clayey sand (SC), well graded sand (SW) and crushed stone classified as poorly graded gravel (GP).
 - 5 Class 2 geotextiles may be specified if these have sufficient survivability based on field experience, laboratory testing and visual inspection of a geotextile sample removed from a field test section constructed under anticipated field conditions or if:
 - a) armor layer stone weights exceed 100 kg, stone drop height is less than 1 m and the geotextile is protected by a 150 mm thick aggregate bedding layer designed to be compatible with the armor layer.
 - b) armor layer stone weights do not exceed 100 kg and stone is placed with a zero-drop height.
 - 6 Permittivity and permeability of geotextile shall be greater than that of the soil.
 - 7 For Class 2, the required MARV tear strength for woven monofilament geotextile shall be 250 N.
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(Page 5, Annex A) — Substitute the following for the existing entries for IS 6359 : 1971, IS 1966 (Part 2) : 2009, IS 13321 (Part 1) : 1992, IS 15060 : 2001

<i>IS No.</i>	<i>Title</i>
IS 6359 : 2023	Method for conditioning of textiles (<i>first revision</i>)
IS 1966 (Part 2) : 2022/ ISO 13938-2 : 2019	Textiles — Bursting properties of fabrics: Part 2 Pneumatic method for determination of bursting strength and bursting distension (<i>third revision</i>)
IS 13321 (Part 1) : 2022/ ISO 10318-1 : 2015	Geosynthetics: Part 1 Terms and definitions (<i>first revision</i>)
IS 15060 : 2018/ ISO 10321 : 2008	Geosynthetics — Tensile test for joint/seams by wide-width strip method (<i>first revision</i>)

(Page 5, Annex A) — Delete the entry for IS 16380 : 2015.

(Page 5, Annex A) — Insert the following new entries at the end:

<i>IS No.</i>	<i>Title</i>
IS 16344 : 2015	Geosynthetics — Guidelines for installation of geotextile for permanent erosion control in hard armor systems
IS 17420 : 2020/ ISO 10722 : 2019	Geosynthetics — Index test procedure for the evaluation of mechanical damage under repeated loading — Damage caused by granular materials (laboratory test method)

(Page 7, Annex C) — Delete and renumber subsequent Annexes.

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