

**केन्द्रीय मुहर विभाग-2**

संदर्भ -: केमूवी-2/16:16393

06 02 2024

**विषय: IS 16393:2015 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-2/16:16393

06 02 2024

**Subject: Guidelines for implementation of amendment no. 1 to IS 16393:2015**

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: 16393

06 02 2024

**Subject: Guidelines for implementation of amendment no. 1 to IS 16393:2015  
(Geosynthetics - Geotextiles used in subsurface drainage application - Specification)**

1. Amendment no. 1 to IS 16393:2015 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 following has been inserted after the 2nd 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.'
Table 1	<ul style="list-style-type: none"><li>• 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.</li><li>• 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</li><li>• 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</li><li>• Method of test for Resistance to installation damage, Percent retained strength, SC/SW/GP has been changed from ISO 10722 to IS 17420</li></ul>

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 16393:2015 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 16393 : 2015 GEOSYNTHETICS — GEOTEXTILES USED IN SUBSURFACE DRAINAGE APPLICATION — SPECIFICATION**

(Page 1, clause 4.2, third sentence) — Insert the following after second 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 4, Table 1) — Substitute the following for existing table:

**Table 1 Requirements of Geotextiles for Subsurface Drainage 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)
<b>A</b>	<b>Index properties</b>					
	i) Type of geotextile	← Woven/non-woven →		← Woven/non-woven →		—
	ii) Roll length, m, <i>Min</i>	← 50 or 100 or as agreed →		← 50 or 100 or as agreed →		IS 1954
	iii) Roll width, m, <i>Min</i>	← 2.0 or 5.0 or as agreed →		← 2.0 or 5.0 or as agreed →		IS 1954
	iv) Grab strength, N, <i>Min</i>	1 100	700	800	500	IS16342
	v) Sewn seam strength, N, <i>Min (see Note 1)</i>	990	630	720	450	IS 15060
	vi) Trapezoidal tear strength, N, <i>Min</i>	400	250	300	180	IS 14293
	vii) CBR puncture strength, N, <i>Min</i>	2 250	1 400	1 700	1 000	IS 16078
	vii) Burst strength, kPa, <i>Min</i>	2 700	1 300	2 100	950	IS 1966 (Part 2)
<b>B</b>	<b>Structural integrity properties: (see Note 2)</b>					IS 1607
	i) Permittivity, sec <sup>-1</sup> , <i>Min</i>					IS 14324
	a) For course soil	← 0.5 →		← 0.5 →		
	b) For medium soil	← 0.2 →		← 0.2 →		
	c) For fine soil	← 0.1 →		← 0.1 →		
	ii) Apparent opening size (AOS), mm, <i>Max</i>					IS 14294
	a) For course soil	← 0.43 →		← 0.43 →		
	b) For medium soil	← 0.25 →		← 0.25 →		
	c) For fine soil	← 0.22 →		← 0.22 →		
<b>C</b>	<b>Durability properties</b>					
	i) Resistance to installation damage, percent retained strength, SC/SW/GP (see Note 3), <i>Min</i>	← 95/93/90 →		← 95/93/90 →		IS 17420

**Price Group 1**

ii) Ultraviolet stability at 500 h, retained strength, percent of original strength, <i>Min</i>	70	70	70	70	IS 13162 (Part 2)
---	----	----	----	----	-------------------

NOTES

- 1 The parameter shall be tested, when product is supplied with seam. Refer to IS 16363 for stitch and overlap seam requirements.
  - 2 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.
  - 3 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).
  - 4 Class 2 geotextile may be specified for trench drain application based on field experience, laboratory testing and visual inspection of a geotextile sample removed from a field test section or when the subsurface drain depth is less than 2 m and drain aggregate is less than 30 mm.
  - 5 In addition to the above default filtration property value of permittivity and AOS, site specific geotextile design may be performed if one or more of the following problematic soil environments is encountered: unstable or highly erodible soils such as non-cohesive silts, gap graded soils, alternating sand/silt laminated soils, dispersive clays and/or rock flour
- 

(Page 5, Annex A) — Substitute the following for the existing entries for IS 1966 (Part 2) : 2009, IS 6359 : 1971, IS 13321 (Part 1) : 1992, IS 15060 : 2001

<i>IS No</i>	<i>Title</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 6359 : 2023	Method for conditioning of textiles ( <i>first 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 joints/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 entry at the end:

<i>IS No.</i>	<i>Title</i>
IS 16363 : 2015	Geosynthetics — Guidelines for installation of geotextile used in subsurface drainage application
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 8, Annex C) — Delete and renumber subsequent Annex.

(TXD 30)

**Publication, BIS, New Delhi**