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उत्पाद मैन्युअल

भूकृत्रिम - कुशनिंग या सुरक्षा उपयोग के लिए भुवस्त्रादी - विशिष्टि IS 16090: 2026 के अनुसार

PRODUCT MANUAL FOR GEOSYNTHETICS — GEOTEXTILES FOR CUSHIONING OR PROTECTION APPLICATIONS — SPECIFICATION as per IS 16090: 2026

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity of practice and transparency in operation of certification underScheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations,2018 for variousproducts. The document may also be used by prospective applicants desirous of obtaining BIS certification.

1.	**मानक संख्या** **IS No.**	:	IS 16090: 2026
	शीर्षक **Title**	:	GEOSYNTHETICS — GEOTEXTILES FOR CUSHIONING OR PROTECTION APPLICATIONS — SPECIFICATION
	संशोधनों की संख्या **No. of amendments**	:	NIL
2.	**नमूना दिशानिर्देश** **Sampling Guidelines**		
a)	**कच्चा माल** **Raw material**	:	The materials used in the manufacturing of Geotextiles shall conform to the requirements specified at clause 4.1, 4.2 & Cl.4.3 of IS 16090: 2026. Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of Licence/Factory Surveillance.
b)	**समूहीकरण दिशानिर्देश** **Grouping Guidelines**	:	Please refer Annex - A
c)	**नमूने का परिमाण** **Sample Quantity**	:	Full width sample with sufficient length to form a minimum of 06 sqm and if polymer is used in the fasteners, threads to join the rolls; then in this case separate sample is required approx. 1 kg.

			Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market).
d)	**परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर** **Parameters to be Declared in Test Request**	:	• Material • Type Note: Apart from the above, any other requirements/ parameters may also be declared as per the standard, as applicable.
3.	**परीक्षण उपकरणों की सूची** **List of Test Equipment**	:	Please refer Annex - B
4.	**निरीक्षण और परीक्षण की स्कीम** **Scheme of Inspection and Testing**	:	Please refer Annex - C
5.	**Sampling Guidelines for Surveillance**	:	During each operative year, one factory sample/Market Sample shall be tested for all requirements including Maximum UV Resistance (after 500h exposure). Further, one factory sample and one market sample shall be tested for all requirements other than Maximum UV Resistance (after 500h exposure) in an operative year.
6.	**एक दिन में संभावित परीक्षण** **Possible tests in a day**		
	On pre-conditioned samples: All tests are possible to be carried out in a day except for Maximum UV Resistance (after 500h exposure) Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies (OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.		
7.	**लाइसेंस का दायरा /Scope of the Licence:**		
	Licence is granted to use Standard Mark as per IS 16090 : 2026 with the following scope:		
	Name of the product		Geo-synthetics -Geo-Textiles used As Protection (or Cushioning) Materials.
	Material		Polyolefin (Polypropylene or Polyethylene)/ Polyester/Polyamides
	Type		I/II/III/IV/V/VI/VII/VIII/IX

ANNEX-A
GROUPING GUIDELINES

1. There are 9 Types of Geo-textiles defined in the Standard i.e. Type 1-9, based on nominal mass per unit area.
2. These 9 types have been divided into 3 Groups for the purpose of GoL/ CSoL, as defined below:

i) Group 1- Type 1 to 3
ii) Group 2- Type 4 to 6
iii) Group 3- Type 7 to 9

3. Further, there are 3 types of materials allowed in the Standard i.e. Polyolefin, Polyester, Polyamides.

4. Based on the above, following grouping guideline shave been prepared for GoL/ CSoL:

i) Sample of highest nominal mass per unit area of a particular material (Polyolefin (Polypropylene or Polyethylene), Polyester, Polyamides) from each group to be drawn and tested to cover that particular group and material in the scope of licence.
ii) Scope of licence shall be restricted based on the manufacturing and testing facilities available.
iii) During operation of licence, samples of each variety covered in the scope of licence, shall be testedin rotation, to the extent possible

Annexure-B

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests Used in with Clause Reference	Test Equipment/Chemicals and Identification Numbers (Where applicable)
1.	Roll length and Roll width, Clause 4.4 & Table 1	– Calibrated rule, having a length greater than the width of the fabric or 1 m, whichever is higher, graduated in millimetres. – Measuring table
1.	Mass per unit area, Clause 4.4 & Table 1	Sample Preparation/Cutting Equipment, Analytical Balance (0.1% Accuracy), Steel Scale, Vernier Caliper
2.	Tensile Strength and Elongation at maximum load, Clause 4.4 & Table 1	Tensile Testing Machine, Extensometer, Distilled Water, Non-ionic wetting agent, Sample Preparation/Cutting Equipment, Conditioning Chamber
3.	Trapezoidal Tear Strength Materials, Clause 4.4 & Table 1	CRE type Tensile Testing Machine, Clamps, Trapezoidal Template, Water Bath maintained at 27±2 °C, Non-Ionic Wetting Agent, Sample Preparation/Cutting Equipment, Conditioning Chamber, Vernier Caliper, Steel Scale
3.	CBR Puncture Resistance, Clause 4.4 & Table 1	Puncture Strength Machine capable of constant rate of displacement of 50 ± 5 mm/min with autographic recorder, Stainless Steel Plunger, Clamping System, Sample Preparation/Cutting Equipment, Conditioning Chamber
4.	Ulatravoilet stability at 500h, retained strength, Clause 4.4 & Table 1	Conditioning Chamber, Sample Preparation/Cutting Equipment, Xenon Arc Apparatus, Tensile Test Apparatus

ANNEXURE- C
SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that during operation of BIS licence, manufacturers will implement a Quality Assurance Plan (QAP) i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing theStandard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan (QAP) defining the control unit (i.e. lot/batch etc.), the levels of control (i.e. the frequency and number of samples for conducting the differenttests as per the Indian Standard) and declare the arrangement for testing i.e. whether in-house or subcontracting/sharing for each applicable test and submit the same to BIS Branch Office for information. The manufacturer shall comply with the QAP and maintain test records in accordance with para 2.1.

1.3 **RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT**:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: The entire quantity of Geotextiles of a particular type and manufactured under similar conditions in a single day using same batch of raw material.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommendedlevels of control are given in **Table 1**. Manufacturer has the discretion of declaring their own levels of control or accept the levels of control given in this document.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan.

2. ENSURING COMPLIANCE THROUGH TESTING- manufacturers shall ensure compliance of their products to all the requirementsof the Indian Standard for which they may have in-house test facilities. However, there is no obligation to maintain in-house laboratory. Licensee may use alternative arrangements for tests of the production as per the declared QAP. Various alternatives are available for operation of BIS certification as given below and the relevant guidelines for availing such relaxations by the manufacturers, as amended from time to time, are to be referred:

i) Shared testing resources like common facility,

ii) Cluster based testing facility,

iii) Sub-contracting to outside laboratories which may either be:

a) BIS recognised/empanelled laboratories, or

b) Any accredited laboratory as per ISO/IEC 17025

2.1 **TEST RECORDS**- The manufacturers shall maintain test records for the tests carried out (either in-house or at a sub-contracted or at shared test facility) to establish conformity of the product to the Standard for operation of licence. For the tests being subcontracted or conducted at a shared test facility, test results issued by the laboratories or test facilities, shall be made available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each label, provided always that the material so marked conforms

to each requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

3.2 **Additional Marking requirements**: Additionally, the following shall also be marked on each label.

a) "For BIS certification details please visit www.bis.gov.in"

4. REJECTION - The production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act,2016.

TABLE 1
(ONLY FOR GUIDANCE PURPOSE)

(1)				(2)		
Test Details				**Recommended Levels of Control**		
Cl.	**Requirement**	**Test Methods**		**No. of Sample**	**Frequency**	**Remark**
		Clause	**Reference**			
4	Requirements	4.1 to 4.4	IS 16090	Adequate inspection to ensure that the material used for the manufacture of Geotextiles shall conform to the requirements of the specification. However, the manufacturer shall maintain appropriate records for evidence of conformity.		
Clause 4.4 &Table 1	Requirements for Geo-textiles Used as Cushioning or Protection Applications					
i)	Type of geotextile	--	Visual	Adequate inspection to ensure that the material used for the manufacture of Geotextiles shall conform to the requirements of the specification. However, the manufacturer shall maintain appropriate records for evidence of conformity.		
ii)	Roll length	--	IS 1954			
iii)	Roll width	--	IS 1954			
iv)	Mass per unit area	--	IS 14716			
v)	**Tensile Properties**					
	a) Tensile Strength b) Elongation at maximum load	--	IS 16635	One	Each Control Unit	
vi)	Trapezoidal tear Strength	--	IS 14293	One	Each Control Unit	----
vii)	CBR Puncture Resistance	--	IS 16078	One	Each Control Unit	----
	Ultraviolet stability at 500h, retained strength	--	IS 13162 (Part 2)	One	Once in a year and whenever there is change in raw material/raw material Supplier, whichever is earlier	----

TEST CERTIFICATE FORMAT

Annexure-I

Test Certificate for Geosynthetics—Geotextiles for Cushioning or Protection Applications

Materials- Specification TEST CERTIFICATE NO. _____DATED ___

TO M/s _____

It is certified that the material described below fully conforms to IS 16090: 2026. All requirements of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks Licence No. CM/L___are as indicated below against each order no. etc.

(PLEASE REFER TO IS 16090: 2026 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

Order No. & Date	Type (I, II, III, IV, V, VI, VII, VIII, IX)	Material (Polyolefins (Polypropylene or Polyethylene)/ Polyester/Polyamides)	Requirements for Geo-textiles Used as Cushioning or Protection Applications				
			Mass per unit area	Tensile Strength	Trapezoidal Strength	CBR Puncture Resistance	Ultraviolet stability at 500h, retained strength

REMARKS SHIPPING ADVICE NO.
WAGON NOS.