



उत्पाद मैनुअल
AGRO TEXTILES – INSECT NETS FOR AGRICULTURE AND HORTICULTURE PURPOSES
IS 16513:2016 के अनुसार

PRODUCT MANUAL FOR
AGRO TEXTILES – INSECT NETS FOR AGRICULTURE AND HORTICULTURE PURPOSES
ACCORDING TO IS 16513:2016

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में अभ्यास और पारदर्शिता के संचालन में पारदर्शिता सुनिश्चित करने 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 लाइसेंस/प्रमाणपत्र 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 coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	उत्पाद Product	:	IS 16513:2016
	शीर्षक Title	:	AGRO TEXTILES – INSECT NETS FOR AGRICULTURE AND HORTICULTURE PURPOSES
	संशोधनों की संख्या No. of amendments	:	0
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	HDPE Monofilament Yarn, Netting Fabric and colour of the fabric used to make insect nets shall conform to Cl. 4.1, 4.2 and 4.3, respectively of IS 16513:2016
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	One sample of insect nets of each type of any dimensions (length x width) to be tested
c)	नमूने का आकार Sample Size	:	1m x 6 m
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please Refer Annex - A

4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please Refer Annex - B
5.	एक दिन में संभावित परीक्षण Possible tests in aday		
	i) Dimensions and Mass as per CI 6.1 ii) Ends per inch/Picks per inch iii) Cover Factor iv) Breaking Strength before UV v) Bursting Strength vi) Air Permeability •		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 16513:2016 with the following scope:		
	Name of the product	AGRO TEXTILES – INSECT NETS FOR AGRICULTURE AND HORTICULTURE PURPOSES	
	Types	Type-I, Type-II, Type-III	

**BUREAU OF INDIAN STANDARDS
MANAK BHAVAN,9, BAHADUR SHAH ZAFAR MARG,
NEW DELHI-110002**

ANNEX-A
LIST OF TEST EQUIPMENTS

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Materials, Cl. 4.1	Wrap Reel , Weighing Balance,
2.	Materials, Cl 4.1.1	Air Circulating Oven, Water Bath, Stop Watch, Vertical Scale
3.	Netting Fabric, Cl 4.2	Measuring Tape, Vernier Calliper
4.	Colour, Cl 4.3	Shade Card
5.	Dimensions and Mass Clause 6.1	A) Counter Meter, B) Measuring Tape C) Digital Weighing Balance
6.	Mass, Cl 6.2, Table 1	A) Digital Weighing Balance B) Humidity Chamber with a) Temperature controller and Digital Indicator b) Humidity controller and digital indicator C) Steel Scale D) Measuring Tape & Digital Vernier Caliper E) Oven F) Metal Template G) Heat Cutter
7.	ii) a) Ends per Inch b) Picks per Inch Cl 6.2, Table 1	A) Pick Glass B) Humidity chamber with a) Temperature controller and Digital Indicator b) Humidity controller and digital indicator C) Steel Scale
8.	iii) Cover factor Cl 6.2, Table 1	A) Micrometer B) Pick Glass C) Humidity chamber with a) Temperature controller and Digital Indicator b) Humidity controller and digital indicator D) Steel Scale
9.	iv) Breaking Strength Cl 6.2, Table 1	A. Universal Tensile testing machine B. Humidity chamber with a) Temperature controller and Digital Indicator b) Humidity controller and digital indicator C. Steel Scale
10.	v) Retention in Breaking Strength after UV Exposure	UV Exposure Tester; this test may be outsourced
11.	vi) Bursting strength Cl 6.2, Table 1	Bursting Strength tester
12.	vii) Air permeability Cl 6.2, Table 1	Air permeability tester with Digital Manometer for measurement of Air Pressure, Three Flow meters with LC of 5, 50 and 500 LPH

The list above is indicative only and may not be considered as exhaustive

ANNEX B

SCHEME OF INSPECTION AND TESTING

1. **LABORATORY-** A laboratory shall be maintained, which shall be suitably equipped (as given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the method given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipment.

2. **TEST RECORD-** The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. **PACKING AND MARKING** - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on a label which shall be affixed to each roll/bundle of insect nets provided always that the material so marked conforms to each requirement of the specification.

3.2 The insect nets shall be packed in roll form in length of 100 m or in bundle form as agreed between buyer and seller. Each fabric/roll bundle shall be marked legibly by affixing a label with the following information:

- a) Indication of source of manufacture (Manufacturer's Name and Address)
- b) Type and mesh size
- c) Declared length and width of insect nets
- d) Mass per square meter of the insect nets (in g/m²)
- e) Batch No. and Date of Manufacture
- f) Any other information desired by the buyer
- g) BIS licence number and "For BIS certification details please visit www.bis.gov.in"

5. **CONTROL UNIT-** For the purpose of this scheme, all the Insect nets rolls / bundles of same type having the same manufacturing parameters in a day shall be considered as a control unit.

6. **LEVELS OF CONTROL** :- The tests as indicate in Table 1 and at the levels of controls in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and records maintained in accordance with paragraph 2 above.

6.1 All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark.

7. **REJECTION** - 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.

TABLE1
LEVELS OF CONTROL

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or)S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods Clause Reference			No. of Sample	Frequency	Remarks
4	Materials						
4.1	HDPE Monofilament yarn (Linear Density, heat shrinkage at 60 °C and 95 °C)	4.1	IS 16513:2016	R	Four (from each knitting machine)	Every 8 hours production or part thereof	That HDPE Monofilament yarn has been manufactured using HDPE granules, UV stabilized by adding suitable UV stabilizer, may be established through supplier's certificate
4.2	Netting Fabric	4.2	-do-	R	One	-do-	In case netting fabric is purchased, that it has been woven on a shuttle less weaving machine, may be established

							through supplier's certificate
4.3	Colour	4.3	-do-	R		Each bundle/roll	
6.1	Dimensions and Mass	6.1	-do-	R		-do-	
6.2 Table 1	Requirements of Insect Nets						
(i)	Mass		IS 1964	R	Two	Each control Unit	At least one sample to be taken at the beginning of the process
(ii)	Ends per Inch Picks per Inch		IS 1963	R	Two	Each control Unit	-do-
(iii)	Cover Factor	Annex B	IS 16513:2016	R	Two	Each control Unit	-do-
(iii)	Breaking strength of Insect nets fabric before UV exposure A) Warpway B) Weftway	6.2	IS 1969 (Part 1)	R	Two	Each control Unit	
(iv)	Retention in Breaking Strength after UV exposure	6.2	Annex C and IS 1969 (Part 1)	S	One	Three months	A sample each of all types covered in the scope of licence and produced during the period has to be tested
(v)	Bursting strength	6.2	IS 1966 (Part 1) or IS 1966 (part 2)	R	Two	Each control Unit	

(vi)	Air Permeability in mm/sec at 50 pascal water head pressure	6.2	IS 11056	R	Two	Each control unit	
------	-------------------------------------------------------------	-----	----------	---	-----	-------------------	--

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.