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उत्पाद मैनुअल
कृषिवस्त्रादि — कृषि और बागवानी प्रयोजनों के लिए
कीट जाल — विशिष्टि
IS 16513: 2016 के अनुसार

PRODUCT MANUAL FOR
AGRO TEXTILES – INSECT NETS FOR AGRICULTURE AND HORTICULTURE PURPOSES
SPECIFICATION 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 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 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.

1.	मानक संख्या IS No.	:	IS 16513:2016
	शीर्षक Title	:	AGRO TEXTILES – INSECT NETS FOR AGRICULTURE AND HORTICULTURE PURPOSES
	संशोधनों की संख्या No. of amendments	:	03
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 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	:	One sample of insect nets of each type of any dimensions (length x width) to be tested
c)	नमूने का परिमाण Sample Quantity	:	1m x 6 m 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	:	Types 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 to Annex- A देखें
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex- B देखें
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	(i) Dimensions and Mass as per Cl 6.1 ii) Ends per inch/Picks per inch iii) Cover Factor iv) Breaking Strength before UV v) Bursting Strength vi) Air Permeability 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 readyreference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.		
6.	लाइसेंस का दायरा /Scope of the Licence: “ Licence is granted to use Standard Mark as per IS 16513:2016 with the following scope:		
7.	उत्पाद का नाम Name of the product		AGRO TEXTILES – INSECT NETS FOR AGRICULTURE AND HORTICULTURE PURPOSES
	Types		Type-I, Type-II, Type –II A, Type-III

BUREAU OF INDIAN STANDARDS
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ANNEX – A
LIST OF TEST EQUIPMENTS
(INDICATIVE LIST, FOR GUIDANCE ONLY)

Major test equipment required to test as per requirements of 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 CI 6.2, Table 1	Bursting Strength tester
12.	vii)Air permeability CI 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

ANNEX B

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

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

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: all the Insect nets rolls / bundles of same type having the same manufacturing parameters in a day.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

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. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as “R” or other tests which can be subcontracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as “R” in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be 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 roll/bundle of insect net, 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: The material shall also be marked with the following additional requirement on each roll/bundle of insect net:

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

4. REJECTION - All 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)	(3)		
Test Detail				Test equipment requirement R: required (or)S: Subcontracting 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	