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उत्पाद मैनुअल

**TEXTILES — ELASTOMERIC YARN —
SPECIFICATION
IS 18669:2024 के अनुसार**

**PRODUCT MANUAL
FOR TEXTILES — ELASTOMERIC YARN
— SPECIFICATION ACCORDING TO
IS 18669:2024**

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 18669:2024
	शीर्षक Title	:	Textile - Elastomeric Yarn - Specification
	संशोधनों की संख्या No. of amendments	:	NIL
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirement 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 to Annex-A
c)	नमूने का परिमाण Sample Quantity	:	3 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	:	i. Cross-section ii. Linear Density iii. Additional/optional requirements: - UV resistant yarn - Fire retardant yarn - Anti-microbial yarn - Dope Dyed/Undyed Yarn - Ultra Violet Light illuminating yarn - With/Without Finish Oil Pick up 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-B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex-C
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	i. No. of filaments ii. Linear Density iii. Elongation at break iv. Tenacity v. Elastic recovery vi. Shrinkage in Boiling Water vii. Moisture regain viii. Colour strength or colour difference ix. Freedom from Yarn Defects x. Commercial Mass 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.		
6.	लाइसेंस का दायरा/Scope of the Licence:		

	“Licence is granted to use Standard Mark as per IS 18669: 2024 with the following scope:	
	Name of the product	Textile - Elastomeric Yarn
	Type of yarn based on cross section	Circular, Dog Bone/Capsule/Oval, etc.
	Type of Yarn based on Linear Density	Group-I/II/III/IV/V/VI/VII/VIII/IX/X
	Additional/optional requirements	-UV resistant yarn -Fire retardant yarn -Anti-microbial yarn - Dope Dyed/Undyed Yarn -Ultra Violet Light illuminating yarn -With/Without Finish Oil Pick up

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ANNEX-A GROUPING GUIDELINES

A. Based on the cross-section, following type of elastomeric yarns have been defined:

- Circular, Dog Bone/Capsule/Oval, etc.

B. Based on Linear density, following groups have been defined in the Standard:

Group	Linear Density (in Denier)
I	≤ 30
II	> 30 to 70
III	> 70 to 140
IV	> 140 to 210
V	> 210 to 280
VI	> 280 to 420
VII	> 420 to 620
VIII	> 620 to 840
IX	> 840 to 1120
X	> 1120

C. Further, following Additional/Optional requirements have also been defined:

- UV resistance
- Fire retardance
- Anti-microbial
- Dope Dyed
- Ultra Violet Light illumination
- With/Without Finish Oil Pick up

D. Considering the above, following grouping guidelines for Grant of Licence (GoL)/ Change in Scope of License (CSoL) shall be followed:

- One sample of any Linear Density (Denier) from each group shall be tested to cover that particular group in the scope of the licence.
- Sample should be drawn & tested in such a way that elastomeric yarn of all the cross sections intended to be covered in the scope of licence gets covered.
- In case optional requirements of UV Resistance, Fire Retardance, Anti-Microbial, Dope Dyed, Ultra Violet illumination & Finish Oil Pick up are intended to be covered in the scope of licence, elastomeric yarn shall be tested for these requirements additionally, as applicable. Further, if the product with additional/optional requirements has been tested, product without additional/optional requirements may also be covered in the scope of licence.
- The firm shall declare the types of elastomeric yarn intended to be covered within the scope of their licence. Scope of licence shall be restricted based on the manufacturing and testing facilities available.
- During operation of licence, samples of each variety covered in the scope of licence, shall be tested in rotation, to the extent possible.

ANNEX-B

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests Used In With Clause Reference	Test Equipment/Chemical
1	Cross-section, Cl. 3.5	- Microscope (100X Magnification) - Glass Slides
2	Number of Filament, Cl. 4.1	- Microscope (100X Magnification) - Scissors/Blade
3	Linear Density, Cl. 4.1 & Table 1	- Conditioning Chamber - Weighing Balance(L.C.- 0.1mg) - Drying Oven (>110°C, L.C.-1°C) - Desiccator with a suitable desiccant - Sealed Containers - Wrap reel
4	Tenacity, Elastic Recovery and Elongation, Cl. 4.1 & Table 1	- Tensile Strength Testing Machine either of CRT, CRL or CRE type, with clamps to grip the sample and means for adjusting the distance between the clamps and for application of pre-tension
5	Modulus at 300 percent elongations, Cl. 4.1 & Table 1	- Dynamic tensile testing machine - Extensometer, with a measuring length of at least 100 mm and accurate to 0,1 mm or more - Recording device, to record the graph of the applied tensile stress as a function of actual elongation.
6	Boiling Water Shrinkage, Cl. 4.1 & Table 1	- Hot Water Bath - Magazine to hold the hanks - Weights according to denier range - Stainless steel scale - Wrap Reel
7	Moisture regain, Cl. 4.2 & Table 2	- Precision Balance (L.C = 0.1mg) - Stainless Steel Vessel - Hot Air Oven Capable of Maintaining at 110 ± 5°C - Forceps - Wrap Reel
8	Water soluble matter, Cl. 4.2 & Table 2	- Water Cooled Condensor - Distilled Water - Hot Air Oven - Flat Bottom Flasks - Precision Balance(L.C = 0.1mg)

9	Antimicrobial Activity Value, (For anti-Microbial yarn only), Cl 4.2 & Table 2	- Apparatus/Equipments as per IS/ISO 20743 - Spectrophotometer - Incubator - Water baths - Mixer - Stomacher - Clean Bench - Washing Machine - Humidity chamber - Luminescence Photometer - Printing Apparatus - Refrigerator - Freezer - Balance - Filtering Apparatus - Pipette, Vials, Glass Bottles - Petri Dishes - Glass Rod - Anti-Bumping Granules - Erlenmeyer Flask - Cutting template - Disposable Plastic Bag - Tweezers - Stainless Steel Cylinders - Metal Wire Basket - Aluminium Foil - Reciprocal Incubation Shaker - Autoclave - Reagents and Culture media as per clause 6 - Reference Strains as per clause 7
10	UV Resistance, percent retained strength (For UV Resistant yarn only), cl 4.2 & Table 2	- Conditioning Chamber - Xenon Arc Type Apparatus equipped with inner and outer borosilicate filter glass - Tensile Testing m/c
11	Phosphorous Content (for flame retardant yarn only), Cl 4.2 & Table 2	- Sulphuric Acid - 2000ml Beaker - Demineralized Water - 1000ml flask - Ammonium Molybdate - 500ml and 100ml Volumetric Flask - Hydroquinone - Sodium Sulphite - Zinc Oxide - Whatman Filter Paper No. 1 - Di-sodium Hydrogen Ortho Phosphate Dihydrate - Weighing Balance(LC- 1mg) - Hot Plate - Silica Crucible - Muffle Furnace - Pipettes-10ml and 05ml - UV Spectro-photometer

12	Colour strength with reference to standard yarn, percent (For dope dyed yarns only) & Colour difference with reference to standard yarn, measured as ΔE , Max (for dope dyed yarns only), Cl 4.2 & Table 2	- Card Winding Machine with uniform tension control - system - Scanning Spectrometer - Card(Aluminium) - Clean Cotton Cloth
13	Yarn Dissolution, Cl 4.2 & Table 2	- Elastomer Fibers/Yarn - 2.2 N,N-Dimethyl Acetamide (DMAc) solvent - Stirring Equipment (Magnetic Stirrer or Mechanical Mixer) - Safety Equipment (Gloves, Lab Coat, Safety Goggles) - Weighing Scale - Graduated Cylinder or Pipette
14	Finish oil pick-up, Cl. 4.2 & Table 2	- Precision Balance(L.C.-0.1mg) - Stainless Steel Vessels - Conical Flasks - Forceps - Petroleum Ether - Soxhlet Apparatus - Bowls OR - NMR (Nuclear Magnetic Resonance) machine
15	Colour Fastness properties for Elastomeric yarn, Cl 4.3 & Table 3	For Light change in colour as per IS/ISO 105-B01 - Source of Daylight - Reference materials - Exposure Rack - Opaque Cardboard - Grey Scale for Measuring change in Colour For Colour Fastness to Washing as per IS/ISO 105-C10 - Suitable Mechanical Laundering Device - Weighing Balance with LC 0.01 grams - Mechanical Stirrer - Non-Corrodible (Stainless Steel) Balls, 6 mm dia - Hot plate - Polyester & Cotton Fabric - Standard Soap & Anhydrous Sodium Carbonate - Soap Solution Grade 3 Water - Adjacent Fabric (Multifibre and Two Single Fibre) - Non-Dyeable Fabric • Sewing Machine - Grey Scale for Colour & Staining - Viewing Cabinet For Colour Fastness to perspiration as per IS/ISO 105-E04 - Test Devices as per Clause 4.1 of IS/ISO 105-E04 - Oven maintained at $(37 \pm 2)^\circ\text{C}$ - Alkaline Solution as per Clause 4.3 of IS/ISO 105-E04 - Acid Solution as per Clause 4.4 of IS/ISO 105-

		E04 - Adjacent Fabrics as per Clause 4.5 of IS/ISO 105-E04 - Non-Dyeable Fabric - Grey Scale for Assessing Change in Colour & Staining - Spectrophotometer or Colorimeter For Colour Fastness to Rubbing as per IS/ISO 105-X12 - Suitable Testing Device as per Clause 4.1 of IS/ISO 105 X12 - Cotton Rubbing Cloth - Soft-back waterproof abrasive paper - Grey Scale for Staining For Colour Fastness to Chlorinated Water as per IS/ISO 105-E03 - Suitable mechanical device as per cl 4.1 of IS/ISO 105-E03 - pH-Meter - Grey Scale for assessing change in colour - Spectrophotometer or colorimeter for assessing change in colour - Analytical Balance (with accuracy of 0.01 g) - Reagents as per cl 5 of IS/ISO 105-E03 - Thermometer For Colour Fastness to Sea Water as per IS/ISO 105- E02 - Test Device as per cl 5.1 of IS/ISO 105-E02:2013 - Oven - Sodium Chloride Solution complying with ISO 3696 - Adjacent Fabrics as per ISO 105-A01 - Grey Scale for assessing change in colour - Grey scale for assessing staining - Spectrophotometer or colorimeter for assessing change in colour and staining - A set of 11 glass or acrylic resin plates - Flat bottomed dish made of inert materials
16	Commercial Mass, Cl. 4.5	- Balance/Weighing Instruments (LC-.1mg) - Airtight vessels/ Desiccator - Hot air oven/Ventilated air oven - Laboratory reagents for Cleaning Specimens
17	General Lab Conditions	- Air Conditioner - Thermometer-Hygrometer - Humidity chamber with provisions to control temperature and relative humidity - Other required glasswares and accessories

ANNEX C

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: Entire quantity of Elastomeric yarn, of each type and variety processed under similar conditions in a single 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 carton/pallet of Elastomeric Yarn, 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 carton/pallet of Elastomeric Yarn:

- a) “For BIS certification details please visit www.bis.gov.in”
- b) *Any other requirement not specified in the Indian Standard*

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 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
4.1, Table 1	Physical Requirements						
i)	Linear Density	Annex B	IS 18669	R	06 bobbins	Each control unit	Samples of each type and variety to be tested
ii)	Tenacity	Annex C	IS 18669	R	06 bobbins	Each control unit	-do-
iii)	Elongation	Annex C	IS 18669	R	06 bobbins	Each control unit	-do-
iv)	Elastic Recovery Percent	Annex C	IS 18669	R	06 bobbins	Each control unit	-do-
v)	Modulus @ 300% elongation	--	IS 16388	S	06 bobbins	Once in a Month	-do-
vi)	Boiling Water Shrinkage	Annex D	IS 18669	R	06 bobbins	Each control unit	-do-
4.2, Table 2	Chemical Requirements						
i)	Moisture regain	Annex E	IS 18669	R	06 bobbins	Each control unit	Samples of each type and variety to be tested
ii)	Water soluble matter	--	IS 3456	R	06 bobbins	Once a Week	-do-
iii)	Anti-microbial activity value	--	IS/ISO 20743	S	06 bobbins	Once in a Month	-do-
iv)	Ultraviolet resistance, 500 h Percent retained strength (For UV resistant yarn only)	--	IS 13162 (Part 2)	S	06 bobbins	Once in a month	-do-

v)	Phosphorus content, (For fire retardant yarn only)	Annex D	IS 17261	R	06 bobbins	Each control unit	-do-
vi)	Colour strength with reference to standard yarn, percent (For dope dyed yarns only)	Annex E	IS 17264	R	06 bobbins	Each control unit	Only for Dope Dyed yarns
vii)	Colour difference with reference to standard yarn, measured as ΔE , Max (for dope dyed yarns only)	Annex F	IS 18669	R	06 bobbins	Each control unit	Only for Dope Dyed yarns
viii)	Yarn Dissolution Test	Annex G	IS 18669	R	06 bobbins	Each control unit	Samples of each type and variety to be tested
ix)	Finish oil pick-up	Annex H	IS 18669	R	06 bobbins	Each control unit	-do-
4.4	Freedom from Yarn Defects	--	IS 18669	R	All bobbins	Each control unit	
4.3	Colour Fastness Properties (Only applicable for dyed elastomeric yarns)						
i)	Light Change in colour	--	IS/ISO 105-B01	S	02 bobbins	Once in six months	Samples of each type and variety to be drawn and tested
ii)	Washing, test 2 a) Change in colour b) Staining	--	IS/ISO 105-C10	R	02 bobbin s	Once a week	-do-
iii)	Rubbing a) Dry b) Wet	--	IS/ISO 105-X12	R	02 bobbins	Once a Week	-do-
iv)	Perspiration (acidic and alkaline) a) Change in colour b) Staining	--	IS/ISO 105- E04	R	06 bobbins	Once a week	-do-
v)	Chlorinated water	--	IS/ISO 105-E03	R	02 bobbin s	Each Control Unit	-do-
vi)	Sea Water	--	IS/ISO 105-E02	R	02 bobbins	Each Control Unit	-do-
4.5	Commercial Mass	--	IS 7703 (Part 3)	R	01 bobbin per position	Each Control Unit	-do-