



उत्पाद मैनुअल
वस्त्रादि - पॉलिएस्टर औद्योगिक धागे - विशिष्टि
IS 17264:2022 के अनुसार

PRODUCT MANUAL
FOR Textiles – Polyester Industrial Yarns –Specification
ACCORDING TO IS 17264:2022

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 17264:2022
	शीर्षक Title	:	Textiles – Polyester Industrial Yarns –Specification
	संशोधनों की संख्या No. of amendments	:	04
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirement
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer Annex-A

c)	नमूने का परिमाण Sample Quantity	:	2 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) Declared (Range of) linear density ii) Type of yarn based on construction iii) Types of yarn based on mechanical properties iv) Type of Yarn Based on Colour v) Type of yarn based on special characteristics vi) Additional/optional requirements vii) Number of Twists (if applicable) viii) Tenacity ix) Elongation x) Hot air shrinkage 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		
	Identification and description (Cl. 5.2), Freedom from yarn defects (Cl. 6.3), Linear Density, Tenacity, Elongation, Hot Air Shrinkage, Number of Twists (Cl. 6.1) 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 17264:2022 with the following scope:		
	Name of the product	Textiles – Polyester Industrial Yarns	
	Declared (Range of) linear density	In Denier (dtex)	
	Type of yarn based on construction	Single Yarn (with or without twist), - Multiple Yarns (wound with similar or dissimilar components),	

		- Doubled, Folded or Plied Yarns(with similar or dissimilar components), - Cabled Yarns(with similar or dissimilar components)
	Types of yarn based on mechanical properties	- Low Shrinkage(LS), - Super Low Shrinkage(SLS), - Low Elongation(LE), - High tenacity(HT), - Super High Tenacity(SHT), - Super High Tenacity Adhesive Activated(SHT-AA), - High Modulus Low Shrinkage(HMLS), - High Modulus Low Shrinkage Adhesive Activated(HMLS-AA)
	Type of Yarn Based on Colour	White or Dope Dyed (DD)
	Type of yarn based on special characteristics	i) Flame Retardant Yarn/Non Flame Retardant Yarn ii) Ultraviolet Light Resistant Yarn/Non Ultraviolet Light Resistant Yarn iii) Virgin/Recycled polyester yarn
	Additional/optional requirements	With or without colour fastness to rubbing With or without Twists

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ANNEX-A
GROUPING GUIDELINES

Polyester Industrial Yarns are classified based on the parameters as given below:-

a) Type of Yarn based on construction:-

- Single Yarn,
- Multiple Yarns(wound with similar or dissimilar components),
- Doubled, Folded or Plied Yarns(with similar or dissimilar components),
- Cabled Yarns (with similar or dissimilar components)

b) Type of Yarn based on Mechanical Properties:-

- Low Shrinkage(LS), - Super Low Shrinkage (SLS),
- Low Elongation(LE), - High tenacity (HT),
- Super High Tenacity (SHT),
- Super High Tenacity Adhesive Activated (SHT AA),
- High Modulus Low Shrinkage (HMLS),
- High Modulus Low Shrinkage Adhesive Activated (HMLS AA)

c) Type of yarn based on colour: White or Dope Dyed (DD)

d) Type of yarn based on special characteristics:

- Flame Retardant Yarn/Non Flame Retardant Yarn
- Ultraviolet Light Resistant Yarn/Non Ultraviolet Light Resistant Yarn
- Virgin/Recycled polyester yarn

e) Type of yarn based on optional requirements

- With/without colour fastness to rubbing (optional)
- With or without Twists

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

- a) One sample of IDY of any Linear Density (Denier) from the declared range given shall be tested.
- b) Separate samples of IDY of each type based on construction shall be tested to cover that type in the scope of licence.
- c) Separate samples of IDY of each type based on mechanical properties shall be tested to cover that type in the scope of licence.
- d) Separate samples of IDY of each type based on colour shall be tested to cover that type in the scope of licence. However, if sample of dope dyed yarn is tested, white yarn can be covered on that basis.
- e) If Flame Retardant Yarn and/or Ultraviolet Light Resistant Yarn is to be covered in the scope, the samples shall also be tested for Phosphorus content (for Flame Retardant Yarn) and/or Ultraviolet resistance (for Ultraviolet Light Resistant Yarn).
- f) Separate samples of virgin and recycled polyester yarn shall be tested.

- g) Samples shall be tested for the optional requirement of colour fastness to rubbing if product with colour fastness to rubbing is to be covered in the scope of licence.
- h) Samples shall be tested for the optional requirement of Twists if product with Twists is to be covered in the scope of licence.

3. The firm shall declare the types of IDY intended to be covered within the scope of their licence. The scope of the Licence may be restricted based on the Manufacturing capability and Testing facilities of the manufacturer.

4. During the operation of the Licence, BO shall ensure that all the Varieties covered in the Licence are 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	Identification and Description, Cl 5.2	Microscopic and dissolution test given in IS 667: Compound Microscope (100X-500X), Dissecting Needles, glass slides, cover glasses, and cross sectioning device and laboratory reagents as per IS 667 or Staining Test as per IS 667: Mixture of dyestuffs (e.g. Shirlastain A, Detex, Fibre Stain etc.), Known Dyed Samples or Determination of Melting Temperature as per Annex H of IS 16481: Differential Scanning Colorimeter (DSC), Balance, capable of weighing to $\pm 10 \mu\text{g}$
2	Linear Density, Cl. 6.1	- 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
3	Tenacity and Elongation, Cl. 6.1	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.
4	Hot Air Shrinkage, Cl. 6.1	Dry Hot Air Thermal Tester as per Annex F of IS 17264:2022
5	Number of Twists, Clause 6.1	- Twist counter - Dissecting needle - Means for magnifying the specimen being tested - Equipment for reeling laboratory sample skeins (optional)

6	Moisture regain, Cl. 6.2	- Precision Balance(L.C....0.1mg) - Stainless Steel Vessels - Hot Air Oven Capable of Maintaining at $110 \pm 5^{\circ}\text{C}$ - Forceps -Wrap Reel
7	Isophthalic acid (IPA) content, Cl. 6.2	- PPE's like safety goggles, apron, surgical hand gloves - Gas chromatograph, - Capillary column - Dispensette or pipette - Volumetric Flask - Beaker, Funnel, 50mlflask, - Heating Mental AR grade Dimethyl Isophthalate, Benzyl Alcohol, Chloroform, Isopropyl Titnate, Dimethyl Suburate
8	Water soluble matter, Cl. 6.2	- Water Cooled Condensor - Distilled Water - Hot Air Oven - Flat Bottom Flasks
9	Finish oil pick-up, Cl. 6.2	- Precision Balance(L.C.-0.1mg) - Stainless Steel Vessels - Conical Flasks - Forceps - Petroleum Ether - Soxhlet Apparatus - Bowls

10	Phosphorus content, Cl. 6.2	- Sulphuric Acid - 2000 ml Beaker - Demineralized Water - 1000 ml flask - Ammonium Molybdate - 500 ml and 100 ml 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
11	Ultraviolet resistance, Cl. 6.2	- Conditioning Chamber - Xenon Arc Type Apparatus equipped with inner and outer borosilicate filter glass - Tensile Testing m/c
12	Colour strength with reference to standard yarn, Cl. 6.2	- Card Winding Machine with uniform tension control system - Scanning Spectrometer - Card(Aluminium) - Clean Cotton Cloth
13	Colour difference with reference to standard yarn, measured as ΔE , Cl. 6.2	- Card Winding Machine with uniform tension control system - Scanning Spectrometer - Card(Aluminium) - Clean Cotton Cloth
14	Freedom from Yarn Defects, Cl. 6.3	- Packing Table UV Light(Clause 6.3.4 and 6.3.7) - Vernier Calipers - Eye Piece Lens(Clause 5.3.15) - Bottom weights(1g to 15g) - Stop watch
15	Colour Fastness Properties, Cl. 6.4	For Colour Fastness to Daylight (as per IS/ISO 105-B01:2014) • Source of Daylight • Reference materials • Exposure Rack • Opaque Cardboard • Grey Scale for Measuring change in colour or For Colour Fastness to artificial light (as per IS/ISO 105-B02: 2014) • Reference materials • Humidity test control fabric • Light Source (xenon arc lamp)

		• black-standard thermometer or a black-panel thermometer • Humidity chamber • Covers • Colour matching lamps • Assessment cabinet • Sample mounting card • Assessment mask For Colour Fastness to Rubbing as per IS/ISO 105-X12: (optional) • Suitable testing device for determining the colour fastness to rubbing, using a reciprocating straight line rubbing motion and two alternative sizes of rubbing fingers. • Cotton rubbing cloth • Soft-back waterproof abrasive paper, or grating of stainless steel wire 1 mm in diameter • Grey scale, for assessing staining, in accordance with ISO 105-A03 • Weighing Balance • Distilled water (for wet rubbing)
16	Commercial Mass, Cl. 6.5	- Balance/Weighing Instruments(LC-.1mg) - Airtight vessels/ Desiccator - Hot air oven/Ventilated air oven - Laboratory reagents for Cleaning Specimens

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 polyester industrial yarn, of each type and variety processed under similar conditions 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 carton/pallet of Polyester Industrial Yarns 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 Polyester Industrial Yarns:

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

4. REJECTION - Non-conforming material shall be clearly identified and labeled as “rejection” and it shall be segregated and stored separately by manufacturers in India. Such rejected material shall be disposed of suitably by manufacturers in India in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016 and the applicable Quality Control Order. Appropriate records of such rejection shall be maintained.

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
5.2	Identification and Description		IS 667, Annex H of IS16481	S	One	Each month	In addition, each consignment of raw material shall be accompanied by test certificate of supplier
6.1, Table 3Physical Requirements of Polyester Industrial Yarn							
i)	Linear Density		IS 7703 (Part 1)	R	One	Each control unit	
ii)	Tenacity		IS 7703 (Part 2)	R	One	-do-	
iii)	Elongation		IS 7703 (Part 2)	R	One	-do-	
iv)	Hot Air Shrinkage	Annex F	IS 17264	R	One	-do-	
--	Number of Twists	--	IS 832 (Part 1)	R	One	-do-	
6.2, Table 4Chemical Requirements of Polyester Industrial Yarn							
i)	Moisture regain	Annex B	IS 17264	R	One	Each control unit	
ii)	Isophthalic acid (IPA) content	Annex C	IS 16481	S	One	Once a month	
iii)	Water soluble matter		IS 3456	R	One	Each control unit	
iv)	Finish oil pick-up	Annex C	IS 17264	R	One	Each control unit	

v)	Phosphorus content, (For fire retardant yarn only)	Annex D	IS 17264	R	One	Each control unit	
vi)	Ultraviolet resistance, 500 h Percent retained strength (For UV resistant yarn only)		IS 13162 (Part 2)	S	One	Once a month	
vii)	Colour strength with reference to standard yarn, percent (For dope dyed yarns only)	Annex E	IS 17264	R	One	Each control unit	Either this or the requirement at viii) needs to be complied with
viii)	Colour strength with reference to standard yarn, percent (For dope dyed yarns only)	Annex E	IS 17264	R	One	Each control unit	Either this or the requirement at vii) needs to be complied with
6.3	Freedom from Yarn Defects	6.3	IS 17264	R	One	-do-	
6.4	Colour Fastness Properties						
i)	Light Change in colour		IS/ISO 105-B01 or IS/ISO 105-B02	S	One	Once a year	Samples of each type and variety to be drawn and tested
iii)	Rubbing (optional) a) Dry b) Wet		IS/ISO 105-X12	S	As agreed between purchaser and supplier		-do-
6.5	Commercial Mass	6.5	IS 17264:2022	R	One	Each control unit	-do-