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उत्पाद मैनुअल
Textiles — Polyester Partially Oriented Yarn (POY) —Specification
IS 17262: 2022 के अनुसार

PRODUCT MANUAL
FOR Textiles — Polyester Partially Oriented Yarn (POY) —Specification
ACCORDING TO IS 17262: 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 सांख्या** **IS No.**	:	IS 17262:2022
	शीर्षक **Title**	:	Textiles – Polyester Partially Oriented Yarn (POY) —Specification
	सांशोधनों की सांख्या **No. of amendments**	:	05
2	**नमूना ददशाननदेश** **Sampling Guidelines**		
a	**कच्चा माल** **Raw material**	:	No specific requirement
b	**समूहीकरण ददशाननदेश** **Grouping Guidelines**	:	Please refer Annex-A
c	**नमूने का पररमाण** **Sample Quantity**	:	05 kg approx. in 03 bobbins 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 (incase of market surveillance, effort may be made to procure therequired quantity of product sample, as far as possible since raw material sample may not be available in market)
3	परीक्षण उपकरणों की सूची **List of Test Equipment**	:	Please refer Annex-B
4	ननरीक्षण और परीक्षण की स्कीम **Scheme of Inspection and Testing**	:	Please refer Annex-C
5	**एक दिन में संभावित परीक्षण** **Possible tests in a day**		
	Identification and Description, Cl 5.2; Cross section, Cl. 6.1; No. of filaments, Cl. 6.1; average tenacity, Cl. 6.1; average elongation, Cl 6.1; Moisture regain, Cl. 6.2; Water soluble matter, Cl. 6.2; Freedom from Yarn Defects. Cl. 6.3; Commercial Mass, Cl. 6.6 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 17262:2022 with the following scope:		
	Name of the product		Textiles – Polyester Partially Oriented Yarn(POY)
	Classification Based on Cross Section		-Cross Sectional View – Circular, Profiled (Angular (Triangular), Lobal (Trilobal), Serrated), Oval (bean shaped), Ribbonlike); - Cross Sectional Area - Solid or Hollow; - Multi Component Fibres – Concentric Cover-Core, Matrix, Sheath-Core;
	Classification Based on Lustre		- Full Dull (FD) - Semi Dull (SD)/ Semi Dull Optically Bright (SDOB) - Bright (BRT)/Optically White (OW) - Super Bright (SBRT)
	Classification Based on Dyeing Method		- Disperse Dyeable [Conventional Dyeable (COD)/ Stock Dyeable (STD)/Easy Dyeable (ED)] - Cationic Dyeable (CD)/Easy Dyeable Cationic (EDCD) - Dope Dyed (DD)
	Linear Density Range		In Denier (if micro denier, same to be specified)

	Additional/Optional requirements	Flame retardant/Not Flame retardant Anti – microbial/ Not Anti – microbial Ultra violet light resistant/Not Ultra violet light resistant With/without colour fastness to rubbing With/without colour fastness to perspiration (acidic and alkaline)

ANNEX-A

GROUPING GUIDELINES

Based on the classification and identification of POY, the following grouping guidelines shall apply for Grant of Licence and Change in Scope of Licence

A) One Sample of POY of any Linear Density (except micro denier yarn) shall be drawn and tested to cover the entire linear density range intended to be covered in the scope of licence. To cover micro denier, one sample of micro denier shall be tested.

B) Similarly, one sample of POY of any class/type shall be drawn to cover all the classes of POY based on cross sectional view, cross sectional area, multi component fibres,

C) Separate samples based on lustre shall be drawn and tested to cover these varieties in the scope of licence.

D) Separate samples of each dyeing method shall be drawn and tested to cover these varieties in the scope of licence.

E) In case optional requirements of Flame retardant, Anti – microbial, and Ultra violet light resistant, colour fastness to rubbing, colour fastness to perspiration (acidic and alkaline) are intended to be covered in the scope of licence, POY shall be tested for these requirements as applicable.

2. The firm shall declare the types of POY 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.

3. 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 ± 10 µg
2	Nominal linear density, Cl. 6.1, Table 3	- Conditioning Chamber - Weighing Balance(L.C.-0.1mg) - Drying Oven(>110^{O}C,L.C.1^{O}C) - Desiccator with a suitable desiccant - Sealed Containers - Wrap reel
3	Cross section, Cl. 6.1, Table 3	Microscope
4	No. of filaments, Cl. 6.1, Table 3	Microscope
5	Average tenacity, Cl. 6.1, Table 3	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.
6	Elongation, Cl. 6.1, Table 3	-do-
7	Interlace as nips per metre, Cl. 6.1, Table 3	- Automatic needle pull entanglement tester, Rapid Automatic Pin Insertion Detector and automatic yarn entanglement tester - Conditioning Chamber - Standard Laboratory weights
8	Unevenness of linear density (U percent) , Cl. 6.1, Table 3	- Capacitance type Uneveness testing Instrument (such as Uster unevenness tester)

		with packing holders, guides, tension devices and take up mechanism, Recorder. - Conditioning Chamber
9	Moisture regain, Cl. 6.2, Table 4	- Precision Balance(L.C....0.1mg) - Stainless Steel Vessels - Hot Air Oven Capable of Maintaining at 110 ± 5°C - Forceps -Wrap Reel
10	Isophthalic acid (IPA) content, Cl. 6.2, Table 4	- 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
11	Water soluble matter, Cl. 6.2, Table 4	- Water Cooled Condensor - Distilled Water - Hot Air Oven - Flat Bottom Flasks
12	Finish oil pick-up, Cl. 6.2, Table 4	- Precision Balance(L.C.-0.1mg) - Stainless Steel Vessels - Conical Flasks - Forceps - Petroleum Ether - Soxhlet Apparatus - Bowls

13	Phosphorus content (For fire retardant yarn only) , Cl. 6.2, Table 4	- 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-10mland05ml - UV Spectro-photometer
14	Ultraviolet resistance, 500 h Percent retained strength, (For UV resistant yarn only) , Cl. 6.2, Table 4	- Conditioning Chamber - UV Apparatus equipped with fluorescent UVB Lamp as per Annex H of IS 17262:2022 - Tensile Testing m/c
15	Anti-microbial activity value, (Fo anti-microbial yarn only) , Cl. 6.2 Table 4	Apparatus/Equipments as per IS/ISO20743:- - Spectrophotometer - Incubator - Wate rbaths - 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
16	Colour strength with reference to standard yarn (For dope dyed yarns only) , Cl. 6.2, Table 4	- Card Winding Machine with uniform tension control system - Scanning Spectrometer - Card(Aluminium) - Clean Cotton Cloth
17	Colour difference with reference to standard yarn, measured as ΔE, (For dope dyed yarns only) , Cl. 6.2, Table 4	-do-
18	Freedom from Yarn Defects. Cl. 6.3	- Packing Table UV Light(Clause6.3.4and6.3.7) - Vernier Calipers - Eye Piece Lens(Clause5.3.15) - Bottom weights(1gto15g) - Stop watch
19	Lustre/Brightness, Cl. 6.4	• Analytical Balance – Capable of weighing to0.1 mg. • Ultraviolet Visible Spectrophotometer • Silica Gel

		• Flask Volumetric • Muffle Furnace — Capable of maintaining temperature 700°C to 800°C and accepting 7to 8 cm dishes • Tongs • Hot Plate – Capable of being heated to 250-300°C • Measuring Cylinder – 10 to 50 ml capacity • Glass Beaker • Reagents: Hydrogen Peroxide, Sulfuric Acid, Nitric Acid, Ammonium Sulphate (AR/GR grade) and TiO2 – With known purity
20	Colour Fastness Properties of Dyed POY, Cl. 6.5	**For Colour Fastness to Daylight (as per IS/ISO105-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 Washing (as per IS/ISO 105-C10 :2006)** • Suitable Mechanical Laundering Device • Weighing Balance with LC0.01grams • Mechanical Stirrer • Non-Corrodible (Stainless Steel) Balls, 6mm dia • Hot plate • Polyester &Cotton Fabric • Standard Soap & Anhydrous Sodium

		Carbonate • SoapSolution□Grade3Water • Adjacent Fabric (Multifibre and Two Single Fibre) • Non-Dyeable Fabric • □Sewing Machine • Grey Scale for Colour & Staining • Viewing Cabinet - For Colour Fastness to Dry heat treatments as per IS4636: • Conditioning Chamber • AluminiumFoil,Thickness0.001to0.002cm • Two Adjacent Fabric • GreyScaleforColour&Staining□Graduated Scale • Hot pressing Machine • LoadingArrangementasperFig2ofIS4636 **For Colour Fastness to perspiration as per IS/ISO105- (optional)** • TestDevicesasperClause4.1of IS/ISO 105-E04 • Oven maintained at (37±2)ºC • Alkaline Solution as per Clause 4.3 of IS/ISO 105-E04 • AcidSolutionasperClause4.4of 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: (optional)** - Cotton Rubbing Cloth • Soft-back waterproof abrasive paper • Grey Scale for Staining
21	Commercial Mass, Cl. 6.6	- 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 Partially Oriented yarn, of each type and variety manufactured 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 on Each carton/pallet of polyester partially oriented 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 polyester partially oriented yarn (POY):

a) "For BIS certification details please visit www.bis.gov.in"
b) "The yarn manufacturer shall mark on the pallets/cartons whether the yarn is Disperse Dyeable/Conventional Dyeable (COD)/Stock Dyeable(STD)/Easy Dyeable (ED)/Cationic Dyeable or Easy Dyeable Cationic Dyeable (EDCD) for the guidance of the yarn/fabric manufacturers"

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 IS 16481	S	06 Bobbins	Each month	In addition, each consignment of raw material shall be accompanied by test certificate of supplier
6.1, Table 3	Constructional and Physical Requirements of Polyester Partially Oriented Yarn (POY)						
i)	Nominal linear density		IS 7703 (Part 1)	R	06 bobbins	Each control unit	Samples of each type and variety to be tested
ii)	Cross section	6.1	IS 17262	R	06 bobbins	After each scheduled spinerette change	-do-
iii)	No. of filaments (rounded off to whole number)	6.1	IS 17262	R	06 bobbins	-do-	-do-
iv)	Average tenacity		IS 7703 (Part 2)	R	06 bobbins	Each control unit	-do-
v)	Elongation		IS 7703 (Part 2)	R	06 bobbins	Each control unit	-do-

vi)	Interlace as nips per metre	Annex B	IS 17262	R	06 bobbins	Each control unit	-do-
vii)	Unevenness of linear density (U percent)		IS 7703 (Part 5)	R	06 bobbins	Each control unit	-do-
6.2,. Table 4	Chemical Requirements of Polyester Partially Oriented Yarn (POY)						Either of the requirements indicated at viii) and ix) of Table 4 needs to be complied with
i)	Moisture regain, percent, at equilibrium condition	Annex C	IS 17262	R	06 bobbins	Each control unit	Samples of each type and variety to be tested
ii)	Isophthalic acid (IPA) content	Annex C	IS 16481	**S**	06 Bobbins	Each month	-do-
iii)	Water soluble matter		IS 3456	R	06 bobbins	Each control unit	-do-
iv)	Finish oil pick-up	Annex D	IS 17262	R	06 bobbins	Each control unit	-do-
v)	Phosphorus content, (For fire retardant yarn only)	Annex E	IS 17262	R	06 bobbins	Each control unit	-do-
vi)	Ultraviolet resistance, 500 h Percent retained strength (For UV resistant yarn only)	Annex H	IS 17262	S	06 bobbins	Once a month	-do-
vii)	Anti-microbial activity value, Min (For anti-microbial yarn only)		IS/ISO 2074	S	06 bobbins	Once a month	-do-

viii)	Colour strength with reference to standard yarn, Percent (For dope dyed yarns only) (see NOTE 3)	Annex F	IS 17262	R	06 bobbins	Each control unit	Samples of each type and variety to be tested but Either of the requirements indicated at viii) and ix) needs to be complied with
ix)	Colour difference with reference to standard yarn, measured as ΔE, Max (For dope dyed yarns only) (see NOTE 3)	Annex F	IS 17262	R	06 bobbins	Each control unit	-do-
6.3	Freedom from yarn defects	6.3	IS 17262	R	All bobbin s	-do-	
6.4	Lustre/Brightness	Annex C	IS 17262	S	06 bobbins	Once a month	
6.5	Colour Fastness Properties of Dyed POY						The fastness testing shall not be done at POY stage. Fastness properties shall be checked after converting to flat yarn or textured yarn
i)	Light Change in colour		IS/ISO 105-B01 or IS/ISO 105-B02	S	03	Once a year	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	03	Once a week	-do-
iii)	Rubbing (optional) a) Dry b) Wet		IS/ISO 105-X12	S	03	As agreed between purchaser and supplier	-do-

iv)	Perspiration (acidic and alkaline) (optional) a) Change in colour b) Staining		IS/ISO 105-E04	S	03	As agreed between purchaser and supplier	-do-
6.6	Commercial Mass		IS 7703 (Part 3)	R	01 bobbin per position	Each control unit	-do-