PM/17264/4
Aug 2022

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उत्पाद मैनुअल
Textiles — Polyester Industrial Yarns — Specification

IS 17264:2022 के अनसार

PRODUCT MANUAL
FOR Textiles — Polyester Industrial Yarns — Specification
ACCORDINGTO IS 17264:2022

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 17264:2022
	शीर्षक **Title**	:	Textiles – Polyester Industrial Yarns – Specification
	संशोधनों की संख्या **No.of amendments**	:	00
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 आकार** **Sample Size**	:	2 kg
3.	**परीक्षण उपकरणों की सूची** **List of Test Equipment**	:	Please refer Annex-B

4.	**निरीक्षण और परीक्षण की स्कीम** **Scheme of Inspection and Testing**	:	Please refer Annex-C
5.	**एक दिन में संभावित परीक्षण** **Possible tests in aday**		
	Identification of yarn (Cl. 5.2), Freedom from yarn defects (Cl 6.3), Tenacity and Elongation (Cl 6.1)		
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
	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 Dyed (coloured)
	Type of yarn based on special characteristics	Flame Retardant Yarn/Non Flame Retardant Yarn Ultraviolet Light Resistant Yarn/Non Ultraviolet Light Resistant Yarn
	ECO mark	With or without ECO mark

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 (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 dissimalar 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 Dyed (coloured)

d) Type of yarn based on special characteristics:

-Flame Retardant Yarn/Non Flame Retardant Yarn
-Ultraviolet Light Resistant Yarn/Non Ultraviolet Light Resistant Yarn

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 any Linear Density(Denier) from the range given for each type based on construction and each type based on mechanical properties shall be tested to for all the requirements to cover Polyester Industrial Yarn of that type tested.
b) If sample of dyed (coloured) yarn is tested, white yarn can be covered on that basis
c) 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)
d) If Eco mark is to be covered in the scope of licence, samples shall also be tested for the additional requirements for eco mark

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

Major test equipment required to test as per the Indian Standard

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 J of IS 16481**: Differential Scanning Colorimeter (DSC), Balance, capable of weighing to ± 10 µg
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	Moisture regain, Cl. 6.2	- Precision Balance(L.C. – 0.1mg) - Stainless Steel Vessels - Hot Air Oven Capable of Maintaining at 110 ± 5°C - Forceps -Wrap Reel
6	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
7	Water soluble matter, Cl. 6.2	- Water Cooled Condensor - Distilled Water - Hot Air Oven - Flat Bottom Flasks
8	Finish oil pick-up, Cl. 6.2	- Precision Balance(L.C.-0.1mg) - Stainless Steel Vessels - Conical Flasks - Forceps - Petroleum Ether - Soxhlet Apparatus - Bowls
9	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-10mland05ml - UV Spectro-photometer
10	Ultraviolet resistance, Cl. 6.2	- Conditioning Chamber - Xenon Arc Type Apparatus equipped with inner and outer borosilicate filter glass - Tensile Testing m/c
11	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
12	Colour difference with reference to standard yarn, measured as ΔE, Cl. 6.2	-do-
13	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
14	Colour Fastness Properties, Cl. 6.4	**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 • WeighingBalancewithLC0.01grams • Mechanical Stirrer • Non-Corrodible(Stainless Steel)Balls,6mmdia • Hot plate • Polyester &Cotton Fabric • Standard Soap & Anhydrous Sodium Carbonate • Soap Solution • •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 • Grey Scale for Colour &Staining

		• Graduated Scale • Hot pressing Machine • LoadingArrangementasperFig2ofIS4636 **For Colour Fastness to perspiration as per IS/ISO105-** • 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-DyeableFabric • Grey Scale for Assessing Change in Colour &Staining • Spectrophotometer or Colorimeter **For Colour Fastness to Rubbing as per IS/ISO 105-X12:** - Cotton Rubbing Cloth • Soft-back waterproof abrasive paper • Grey Scale for Staining
15	Commercial Mass, Cl. 6.5	- Balance/Weighing Instruments(LC-.1mg) - Airtight vessels/ Desiccator - Hot air oven/Ventilated air oven - Laboratory reagents for Cleaning Specimens

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.

The manufacturer shall prepare and implement 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 each carton/pallet of Polyester Industrial Yarns provided always that the material so marked conforms to each requirement of the specification.

The polyester industrial yarn (IDY) shall be wound over bobbins or cheeses in any mass upto 14 kg of yarn per bobbin/cheese. All such packages shall be to be packed in pallets or cartons, properly strapped using polypropylene/PET straps. Packing materials should be roadworthy/airworthy/sea worthy as agreed to between the buyer and the seller. All wooden pallets are to be heat treated. All wooden/paper packing should be free from infestation/ fungal growth.

Each carton/pallet of polyester industrial yarn (IDY) shall be marked with indelible ink, the following information:

a) Name and description of the material (see 5.2);
b) Designation of the material (see 5.1);
c) Commercial mass of each carton/pallet;
d) Manufacturer's name, address and trade-mark (if available);
e) Lot/batch/merge number;
f) Month and year of manufacture; and
g) Any other information required by the law in force
h) BIS licence number and ¯For BIS certification details please visit www.bis.gov.in‖

5. **CONTROL UNIT**- For the purpose of this scheme, a control-unit is defined as the entire quantity of polyester industrial yarn, of each type and variety processed under similar conditions in a single day

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**
5.2	Identification and Description		IS 667, Annex J 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	Physical Requirements of Polyester Industrial Yarn						
i)	Linear Density		IS 7703 (Part 1)	R	06 bobbins	Each control unit	Samples of each type and variety to be tested
ii)	Tenacity		IS 7703 (Part 2) (also see notes under table 3 of IS 17264:2022)	R	06 bobbins	-do-	-do-
iii)	Elongation		IS 7703 (Part 2) (also see notes under table 3 of IS 17264:2022)	R	06 bobbins	-do-	-do-
iv)	Hot Air Shrinkage	Annex F	IS 17264	R	06 bobbins	-do-	-do-

6.2, Table 4	Chemical Requirements of Polyester Industrial Yarn						
i)	Moisture regain	Annex B	IS 17264	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 C	IS 17264	R	06 bobbins	Each control unit	-do-
v)	Phosphorus content, (For fire retardant yarn only)	Annex D	IS 17264	R	06 bobbins	Each control unit	-do-
vi)	Ultraviolet resistance, 500 h Percent retained strength (For UV resistant yarn only)		IS 13162 (Part 2)	S	06 bobbins	Once a month	-do-
vii)	Colour strength with reference to standard yarn, percent (For dope dyed yarns only) (see Note 3)	Annex E	IS 17264	R	06 bobbins	Each control unit	Samples of each type and variety to be tested
viii)	Colour strength with reference to standard yarn, percent (For dope dyed yarns only) (see Note 3)	Annex E	IS 17264	R	06 bobbins	Each control unit	Samples of each type and variety to be tested
6.3	Freedom from Yarn Defects	6.3	IS 17264	R	All bobbins	-do-	

6.4	Colour Fastness Properties						
i)	Light Change in colour		IS/ISO 105-B01 or IS/ISO 105-B02	S	02 bobbins	Once a year (see note 4)*	Samples of each type and variety to be drawn and tested
iii)	Rubbing a) Dry b) Wet		IS/ISO 105-X12	R	02 bobbins	Once a week	-do-
6.5	Commercial Mass		IS 7703 (Part 3)	R	01 bobbin per position	Each control unit	-do-
6.6	Additional Requirements for Ecomark (Optional)						
i)	Free and releasable formaldehyde		IS 14563 (Part 1) and IS 14563 (Part 2)	S	01	Once a year	Only for Eco marked material
ii)	Extractable heavy metals by artificial Acidic sweat/saliva		Annex A of IS 15651	S	01	-do-	-do-
iii)	Pentachlorophenol,		Annex B of IS 15651	S	01	-do-	-do-
iv)	Pesticides (Sum parameter)		Annex D of IS 15651	S	01	-do-	-do-
v)	Banned Pesticides		Annex D of IS 15651	S	01	-do-	-do-

vi)	Banned azo colourants (arylamines), (For dyed yarn only) (Sum parameters)		IS 15570	S	01	-do-	-do-

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.

Note-3: Either of the requirements indicated at vii) and viii) of Table 4 needs to be complied with.

Note 4: :In the first instance, samples for each colour and shade shall be drawn and tested either in laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau or in the in-house lab of manufacturer, in case if facility exists. Those colours and shades shall be marked only if they conform to the relevant requirement of the specification. Afterwards, an undertaking to the effect that there shall be no change in brand, colour, shade and processing conditions shall be obtained from the manufacturer. However, two samples drawn from each colour& shade shall be got tested once a year in an independent laboratory or in laboratory of manufacturer, in case if facility exists.