



PRODUCT MANUAL FOR
Unsintered Polytetrafluoroethylene(PTFE) Tape for Thread
Sealing Applications –Specification, according to IS 14643:1999

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 14643: 1999
	शीर्षक Title	:	Unsintered Polytetrafluoroethylene(PTFE) Tape for Thread Sealing Applications -Specification
	संशोधन संख्या No. of Amendments	:	01
2.	नमूनाकरण दिशानिर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	Virgin PTFE Material of suitable grade as per IS 14635 Conformity of materials to the requirement of the specification may be established through either of the following or a combination of the same (No testing is required if the material is ISI marked): Test report from a laboratory recognized by the Bureau/ Government laboratories empanelled by the Bureau/ NABL accredited laboratories or Material supplier's test certificate or In-house factory test report. 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 दिशा निर्देश Grouping guidelines	:	NA

c)	नमूने का परिमाण Sample Size	:	20 Nos rolls with adequate raw material (if applicable)
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	:	i) Name of the product ii) Nominal Length, width and thickness of tape 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 Annex –A
4.	निरीक्षण व परीक्षण स्कीम Scheme of Inspection and Testing	:	Please refer Annex –B
5.	एक दिन में संभावित परीक्षण Possible tests in a day :	:	i) Appearance and Finish (Cl. 3.2.1 and 3.2.2) ii) Tolerance and Dimension (Cl. 3.3) iii) Thread Wrapping Properties (Cl. 3.4)
6.	लाइसेंस का कार्यक्षेत्र / Scope of the Licence :		
	IS 14643:1999 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है। Licence is granted to use Standard Mark as per IS 14643:1999 with the following scope:		
	Name of the product	Unsintered Polytetrafluoroethylene (PTFE) Tape for Thread Sealing Applications	

BUREAU OF INDIAN STANDARDS

Manak Bhawan, 9, Bahadur Shah
Zafar Marg, New Delhi – 110002

ANNEX-A

List Of Test Equipment (Indicative List for Guidance Only)

Sl. No.	Tests used in with Clause reference	Test Equipment/Chemicals
1.	Residual Lubricant Content (Cl. 3.1.1, Annex A)	Petroleum Spirit, Soxhlet Extractor with socket joint, cone joint and extraction thimble fitted with a glass bottle, Condenser, Boiling flask, Air Circulating Oven (capable of maintaining 300°C), Metal Crucible, Balance, Dessiccator, Beaker.
2.	Appearance and Finish (Cl. 3.2)	Reflected Light
3.	Dimensions- Length, Width and Thickness(Cl. 3.3)	Measuring Tape, Steel Scale, Vernier Calliper, Micrometer Gauge(L.C.-0.001mm), Flat Surface.
4.	Thread Wrapping Properties(Cl. 3.4)	Brass Pipe, taper Gauge(R ½)
5.	Sealing Tests(Cl. 3.5, Annex D)	Steel Tubes(as per Cl. D-1.1 i.e. TP1, TP2, TP3, TP4, TP12), Steel Sockets(as per Cl. D-1.2 i.e. TP 5, TP 6, TP 7, TP 8, TP 9, TP 10, TP 11, TP 13), Assembly of Couplings(as per Cl. D-2, Table 3), Gripping Tool, Torque tester/Wrench
6.	Sealing Tests(Cl. 3.5, D-3)	- General- Air Conditioner and Water Bath, Stop Watch(Cl. D-3.1) - Pressure test at 10 Bar Pressure- Air or Nitrogen Pressure Supply(Cl. D-3.2) - Pressure Test at 30 Bar Pressure- Air or Nitrogen Pressure Supply(Cl. D-3.3) - Heat Cycling Test at 10 Bar Pressure- Air Circulating Oven, Air or Nitrogen Pressure Supply(Cl. D-3.4) - Heat Cycling test at 30 Bar Pressure- Air Circulating Oven, Air or Nitrogen Pressure Supply(Cl. D-3.5) - Hot Water Test- Air or Nitrogen Pressure Supply, Water Bath (Cl. D-3.6) - Resistance to Low Temperature- N-Pentane, Deep Freezer, Air or Nitrogen Pressure Supply(Cl. D-3.7) - Resistance to Hydrocarbons- 2,2,4-trimethylpentane, toluene, Air or Nitrogen Pressure Supply,
7	Perfluorooctanate (PFOA)	Solid Phase extraction apparatus High-performance liquid chromatograph, temperature-controlled and with all necessary accessories, including gases, HPLC columns, injector and tandem mass spectrometer Water, complying with at least grade 3 as specified in ISO 3696:1987. Acetic acid, w(CH₃COOH) = 99,9 % mass fraction. Ammonia solution, w(NH₃) = 25 % mass fraction. Ammonium acetate, w(CH₃COONH₄) = 97 % mass fraction. Methanol (CH₃OH), HPLC grade. Internal-standard solutions Calibration standards Solid-phase extraction material, copolymer-based. Nitrogen (N₂), purity > 99,996 %. Sodium thiosulfate pentahydrate

ANNEXURE 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- the entire quantity of the unsintered PTFE Tape produced in a day from similar raw materials and under similar conditions shall constitute a control unit.

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/empanelled 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 packaging 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 packaging:

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.

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting Permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
3.1.1	Virgin PTFE Material	3.1.1	IS 14635(Part 1)	S	One	Each Consignment	Conformity of materials to the requirement of the specification may be established through either of the following or a combination of the same (No testing is required if the material is ISI marked): Test report from a laboratory recognized by the Bureau/ Government laboratories empanelled by the Bureau/NABL accredited laboratories or Material supplier's test certificate or In house factory test report.
3.1.1	Residual Lubricant Content	3.1.1	Annex-A of IS 14643	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity.		
3.2	Appearance and Finish	3.2	Annex A of IS 14643	R			
3.3.1	Length	3.3.1	Annex B of IS 14643	R	Firm to have adequate in-process controls to check compliance of this parameter as given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity.		
3.3.2	Width	3.3.2					
3.3.2	Thickness	3.3.2					
3.4	Thread Wrapping Properties	3.4	Annex C of IS 14643	R			
3.5	Sealing tests- pressure test at 10 bar pressure	3.5, Annex-D	D-3.2 of IS 14643	R	One Sample	Once in a week	Also to be tested whenever source or nature of material changes
3.5	Sealing tests- Pressure test at 30 bar pressure	3.5, Annex-D	D-3.3 of IS 14643	R	One Sample	Once in a week	Also to be tested whenever source or nature of material changes
3.5	Sealing Tests- Heat Cycling test at 10 bar pressure	3.5, Annex-D	D-3.4 of IS 14643	S	One Sample	Once in three months	Also to be tested whenever source or nature of material changes

3.5	Sealing Tests- Heat Cycling test at 30 bar	3.5, Annex-D	D-3.5 of IS 14643	S	One Sample	Once in three months	Also to be tested whenever source or nature of material changes
3.5	Sealing tests- Hot Water Test	3.5, Annex-D	D-3.6 of IS 14643	S	One Sample	Once in three months	Also to be tested whenever source or nature of material changes
3.5	Sealing tests- Resistance to Low temperature	3.5, Annex-D	D-3.7 of IS 14643	S	One Sample	Once in three months	Also to be tested whenever source or nature of material changes
3.5	Sealing Tests- Resistance to Hydrocarbons	3.5, Annex-D	D-3.8 of IS 14643	S	One Sample	Once in three months	Also to be tested whenever source or nature of material changes
3.6	Perfluorooctanate (PFOA)	3.6	ISO 25101	S	One Sample	Once in six months	Also to be tested whenever source or nature of material changes