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उत्पाद मैन्युअल

पॉलीइथीलीन फिल्म और शीट

IS 2508:2024 के अनुसार

PRODUCT MANUAL
FOR POLYETHYLENE FILMS AND SHEETS
ACCORDING TO IS 2508:2024

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 2508:2024
	शीर्षक **Title**	:	Polyethylene Films and Sheets
	संशोधनों की संख्या **No. of amendments**	:	
2.	**नमूना दिशानिर्देश** **Sampling Guidelines**		
a)	**कच्चा माल** **Raw material**	:	i)The raw material used for manufacturing natural film/sheet shall consist of only polyethylene resins conforming to IS 7328. ii) The black compound for polyethylene film/sheet shall consist of polyethylene resins conforming to IS 7328.
b)	**समूहीकरण दिशानिर्देश** **Grouping Guidelines**	:	Pl. See Annex-A
c)	**नमूने का परिमाण** **Sample Quantity**	:	Minimum 5 meter
3.	**परीक्षण उपकरणों की सूची** **List of Test Equipment**	:	Please see ANNEX - B
4.	**निरीक्षण और परीक्षण की स्कीम** **Scheme of Inspection and Testing**	:	Please see ANNEX - B

5.	**एक दिन में संभावित परीक्षण** **Possible tests in a day**		All tests mentioned in the IS except Ageing test.
6.	**लाइसेंस का दायरा /Scope of the Licence:**		
	Licence is granted to use Standard Mark as per IS 2508:2016 with the following scope:		
	Name of the Product	Polyethylene Films and Sheets	
	Type	Type I/Type II/Type III/Type IV	

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ANNEX-A

GROUPING GUIDELINES

1. Each type intended to be covered in the scope of the licence is to be tested.

2. Scope of licence shall be restricted based on the manufacturing and testing facilities available.

3. During operation of licence, samples of each type covered in the scope of licence, shall be tested in rotation, to the extent possible

ANNEX - B

List of Test Equipment

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Density(Clause 5.1.4)	Pyknometer Balance Beaker, Thermometer
2.	Melt Flow Index (5.1.5)	Cylinder and piston Balance Dies Temperature Control System Removable Load Thermometer
3.	Black Film (5.1.6)	
a)	Carbon Black	Furnace Combustion Tube Combustion Boat Gas flow meter Thermometer
b)	Ash Content	
c)	Dispersion of carbon Black	Hot Plate Microscope Microscope slides
4.	Dimensional Requirement (Clause 5.2)	Dead weight dial micrometer Dial Thickness gauge
5.	Tensile Strength and Tear Resistance test (Clause 6, Clause 7, Clause 8 and Clause 9)	Tensile testing machine Extensometer Grips Die
6.	Ageing test (Clause 6 and 7)	Air oven or Oxygen Chamber as per IS 7016 (Part 8)
7.	Puncture resistance test (Clause 8 and 9)	Tensile testing machine Ring clamp Attachment Steel Rod
8.	Dart Impact Strength (Clause 6 and 7)	Electromagnet Micrometer Dart head Specimen Clamp

ANNEX- 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 total quantity of polyethylene films and sheets of the same type produced from the same type of raw material in one day shall constitute one 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 requirementsof 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 withtest facilities for routine tests (indicated as "R" in Column 2 of Table 1)**, where different testsgiven 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 laboratoryor 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 marked on the printed /stenciled on each roll or packet or label applied to it as the case may be; provided always that the material in each roll or packet to which this mark is thus applied conforms to every 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.

TABLE 1

(ONLY FOR GUIDANCE PURPOSE)

Requirements for Type I Polyethylene (PE) Film/Sheet

(1)				(2)	(3)		
TEST DETAILS				**Test equipment requirement** R: required (or)S: Sub-contracting permitted	**LEVEL OF CONTROL**		
Clause	**Requirements**	**Test Method**			**No. of samples**	**Frequency**	**Remarks**
		Clause	**Reference**				
6	Final Product Density	--	IS 13360 (Part 3/Sec 10,11 and 12)	R	one	Each Control Unit	----
	Tensile strength at break a) Machine direction b) Transverse direction	-	IS 13360 (Part 5/Sec 1) IS 13360 (Part 5/Sec 3)	R	one	Each Control Unit -do-	
	Ageing test at (70 ± 1) ºC for 7 days	4	IS 7016 (Part 8)	R	one	Once in month	
	Elongation at break a) Machine direction(MD) b) Cross-machine direction(TD)	-	IS 13360 (Part 5/Sec1) IS 13360 (Part 5/Sec3)	R	one	Each Control Unit -do-	

	Dart impact strength	-	Method B of IS 13360 (Part 5/Sec 6)	R	one	Each Control Unit	

(1)				(2)	(3)		
	Tear resistance a) Machine direction b) Transverse direction	-	Annex B of IS 2508 : 2016	R	one	Each Control Unit -do-	
	NOTE-Machine direction (MD) and cross-machine direction (TD) average values should be on the basis of five test specimens in each direction.						

Table 2

Requirements for Type II Polyethylene (PE) Film/Sheet

(1)				(2)	(3)		
TEST DETAILS				**Test equipment requirement R: required (or)S: Sub-contracting permitted**	LEVEL OF CONTROL		
Clause	Requirements	Test Method			No. of samples	Frequency	Remarks
		Clause	Reference				
7.1	Tensile strength at break a) Machine direction (MD) b) Transverse direction(TD)	-	IS 13360 (Part 5/Sec1) IS 13360 (Part 5/Sec3)	R	one	Each Control Unit -do-	---

	Ageing test at (70 ± 1) ºC for 7 days	4	IS 7016 (Part 8)	R	one	Once in month	
	Elongation at break a) Machine direction(MD) b) Cross-machine direction(TD)	-	IS 13360 (Part 5/Sec1) IS 13360 (Part 5/Sec3)	R	one	Each Control Unit -do-	
	Dart impact strength	-	Method A of IS 13360 (Part 5/Sec 6)	R	one	Each Control Unit	
	Machine direction (MD) and cross-machine direction (TD) average values should be on the basis of five tests specimens in each direction.						

Table 3

Requirements for Type III Polyethylene (PE) Film/Sheet

(1)				(2)	(3)		
TEST DETAILS				**Test equipment requirement R: required (or)S: Sub-contracting**	LEVEL OF CONTROL		
Clause	Requirement	Test methods			No. of samples	Frequency	Remarks
		Clause	Reference				
8.1	Tensile properties [1)] a) Yield strength b) Breakstrength c) Yield elongation d) Breakelongation	--	IS 13360 (Part 5/Sec 1) IS 13360 (Part 5/Sec 3) Test Conditions – Specimen Type 5 and	R	one	Each Control Unit	--
	Tear resistance	Annex B	IS 2508 : 2016	R	one	Each Control Unit	
	Puncture resistance	Annex C	IS 2508 : 2016	R	one	Each Control Unit	

1) Machine direction(MD)and cross-machined irection(TD) average values should be on the basis of five test specimens in each direction. Yield elongation is calculated using a gauge length of 33 mm. Break elongation is calculated using a gauge length of 50mm.

Table 4

Requirements for Type IV Polyethylene (PE) Film/Sheet

(1)				(2)	(3)		
TEST DETAILS				**Test equipment requirement R: required (or)S: Sub-contracting**	LEVEL OF CONTROL		
Clause	Requirement	Test methods			No. of samples	Frequency	Remarks
		Clause	Reference				
9.1	Tensile properties [1)] a) Yield strength b) Breakstrength c) Yield elongation d) Breakelongation	--	IS 13360 (Part 5/Sec 1) IS 13360 (Part 5/Sec 3) Test Conditions – Specimen Type 5 and test speed 51 mm/min	R	one	Each Control Unit	--
	Tear resistance	Annex B	IS 2508 : 2016	R	one	Each Control Unit	
	Puncture resistance	Annex C	IS 2508 : 2016	R	one	Each Control Unit	

1) Machine direction (MD) and cross-machine direction (TD) average values should be on the basis of five test specimens in each direction. Yield elongation is calculated using a gauge length of 33 mm. Break elongation is calculated using a gauge length of 50mm.