



उत्पाद मैनुअल
HIGH DENSITY POLYETHYLENE FILMS
IS 10889:2004 के अनुसार

PRODUCT MANUAL
FOR HIGH DENSITY POLYETHYLENE FILMS
ACCORDING TO IS 10889:2004

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 10889:2004
	शीर्षक Title	:	High Density Polyethylene Films
	संशोधनों की संख्या No. of amendments	:	01
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Clause 5.1 – Compound used for manufacturing film shall consist of only polyethylene resins complying as per clause 5.1.1. When film is meant for food contact application, the compound shall also comply with IS 10141 and IS 10148. Clause 5.1.1 – Material to be used shall be any of the designations conforming to IS 7328 given in cl 5.1.1.1 and cl 5.1.1.2 Clause 5.2 – Black Compound – Base polymers for black films shall conform to grades as specified in 5.1.1 and shall contain 2.5±0.5% carbon black by mass.
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Each Grade shall be tested to cover that grade of HDPE film in the scope of licence.

c)	नमूने का आकार Sample Size	:	20 meters
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer ANNEX – A
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer ANNEX – B
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	All tests		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 10889:2004 with the following scope:		
	Name of the product	High Density Polyethylene Films	
	Grades	Grade 1/ Grade 2	

BUREAU OF INDIAN STANDARDS
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ANNEX-A

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
1.	Density (Clause 6.1.4)	
	Method A - Immersion Method (as per clause 5.1 of IS 13360 (Part 3/Sec 10))	Analytical Balance (or) instrument specifically designed for measurement of density
		Stationary Support
		Immersion Vessel
		Thermometer
		Wire, if required, for suspending specimen
		Sinker (for use when density of specimen is less than that of immersion liquid)
		Pyknometer
		Liquid Bath
		Immersion Liquid (freshly distilled or deionised water, or another suitable liquid - with known density and accompanied by a certificate)
	Method B – Liquid Pyknometer Method (as per clause 5.2 of IS 13360 (Part 3/Sec 10))	Balance
		Stationary Support
		Pyknometer
		Liquid Bath
		Dessicator
		Immersion Liquid (freshly distilled or deionised water, or another suitable liquid - with known density and accompanied by a certificate)
	Method C– Titration Method (as per clause 5.3 of IS 13360 (Part 3/Sec 10))	Liquid Bath
		Gas Cylinder
		Thermometer
		Volumetric Flask
		Flat- Tipped glass rod stirrer
		Burette
		Immersion liquids – Two miscible liquids of different densities: one with higher and other with lower density than that of test material
	Density Gradient Column Method (as per IS 13360 (Part 3/Sec 11))	Density gradient column
		Liquid bath
		Calibrated glass floats
		Balance
		Siphon or pipette assembly
		Immersion liquids – Two miscible liquids of different densities
2.	Melt Flow rate (Clause 6.1.5)	Melt flow rate testing apparatus as per cl 3.1 of IS 13360 (Part 4/Sec 1) along with dies, temperature control system, two-directional bubble level and set of weights.
		Packing rod made of non-abrasive material

		Cleaning equipment
		Mercury-in-glass thermometer
		For Procedure A:
		Cutting Tool
		Timer
		Balance
		For Procedure B:
3.	Black Film (Clause 6.1.6)	Measurement equipment for automatic measurement of distance and time for the piston movement.
		For Carbon Black (as per clause 10 of IS 2530)
		Combustion Boat
		Combustion Tube
		Gas Flow Meter
		Thermometer
		Furnace
		Nitrogen Gas
		Trichloroethylene
		For Carbon Black (as per clause 16 of IS 2530)
		Microscope
		Microscope slides
4.	Nominal Thickness (Clause 6.2.1)	Hot Plate
5.	Nominal Width (Clause 6.2.2)	Dead-weight dial micrometer with flat anvil and spindle head (or) spring micrometer calibrated against dead-weight micrometer
6.	Yield Tolerance (Clause 6.3)	Vernier (or) Steel scale (or) Measuring Tape
7.	Mechanical Properties	Weighing balance
	Tensile Strength at break (Clause 6.4.1) & Elongation at break (Clause 6.4.2)	
		Tensile Testing Machine with grips, force indicator, strain indicator (extensometers)
		Vernier
8.	Impact Resistance (Falling Dart) (Clause 6.4.3)	Micrometer
		Impact Resistance Testing Machine (as per clause 5 of IS 13360 (Part 5/Sec 6) essentially consisting of specimen clamp, electromagnet, positioning device, collar, cushioning and shielding device
		Darts
		Micrometer

The above list is indicative only and may not be treated 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.

1.1 The manufacturer shall prepare 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 printed or stenciled on each roll or packet or on the label applied to it provided always that the material so marked conforms to each requirement of the specification.

3.2 The roll or polyethylene film shall be packed as agreed to between purchaser and supplier. Each roll shall also be marked with the following:

- a) Manufacturer's Name or Trade Mark
- b) Name of the material
- c) Grade of the film
- d) Width of the roll
- e) Length of the roll
- f) Mass of the roll
- g) Thickness of the film
- h) The batch or control unit number and date of manufacture, and
- j) BIS licence number and "For BIS certification details please visit www.bis.gov.in"

4. **CONTROL UNIT-** For the purpose of this scheme, Total quantity of HDPE films of the same grade and produced from the same consignment of raw material in one day shall constitute a control unit.

5. **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.

5.1 All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark.

6. **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 Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
5	Composition	3.1.2 & 3.2.1	IS 7328	S	One	Each Consignment	Each Consignment shall be accompanied with test certificate or shall be tested in house/ independent evaluation or certified material.
6.1.1	Appearance	6.1.1	IS 10889	R	Six	Each control unit	In case of more than one shift, draw equal number of samples from each shift to make up with the numbers of samples as indicated in column (3).
6.1.2	Film Form	6.1.2	-do-	R	Six	-do-	-do-
6.1.3	Odour	6.1.3	-do-	R	Six	-do-	-do-
6.1.4	Density	5	IS 13360 (Part 3/ Sec 10)& IS 13360 (Part 3/Sec 11)	R	Three	-do-	-do-
6.1.5	Melt Flow Rate		IS 13360 (Part 4/Sec 1)	R	Three	-do-	-do-
6.1.6	(a) Carbon	10	IS 2530	R	Three	-do-	-do-

	Black						
	(b) Dispersion of Carbon Black	16	-do-	R	Three	-do-	-do-
6.2.1	Thickness	6.2.1	IS 10889	R	Six	-do-	-do- In case any change is made in the width size of the film during production, additional testing for thickness and width shall be ensured as per frequency as stipulated in this table.
6.2.2	Width	6.2.2	-do-	R	Six	-do-	-do-
6.3	Yield Tolerance	Annex B	-do-	R	Three	-do-	-do-
6.4.1	Tensile strength at break	9	IS 13360 (Part 5/Sec 1) & IS 13360 (Part 5/Sec 3)	R	Three	-do-	-do-
6.4.2	Elongation at break	-do-	-do-	R	Three	-do-	-do-
6.4.3	Impact Resistance	8	IS 13360 (Part 5/Sec 6)	R	Three	-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.