

	CORPORATE PURCHASING SPECIFICATION	AA51422
		Rev No. 00
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MULTILAYERED CROSS LAMINATED POLYETHYLENE FILM FOR NON CRITICAL ITEMS

1 GENERAL

This specification governs the quality requirements of multi-layered cross laminated polyethylene film. The cross lamination gives qualities of extra toughness, together with flexibility and lightness coupled with good weather resistance to ultra violet rays.

2 APPLICATION

Used for packing and allied purposes.

3 COMPLIANCE WITH NATIONAL STANDARDS

The material shall comply with the requirement of the following national standard and also meet the requirements of this specification.

IS 14611-2016: Multilayered Cross Laminated Sheets/Tarpaulins/ Covers/ Agricultural Films Specification

4 AVERAGE WEIGHT, DIMENSIONS AND TOLERANCES

4.1 Average weight & Sizes

Average weight gram per square meter (gsm), Width and Length shall be as stated on the order.

The material shall be of the following five types based on mass per unit area of the film:

- a) Type XLN: Extra light duty
- b) Type LN: Light duty
- c) Type MN: Medium duty
- d) Type HN: Heavy duty
- e) Type XHN: Extra heavy duty

4.2 Average Weight and Tolerance

35, 55, 60, 70 to 100, 120 to 150, 200 to 250, 300 GSM with a tolerance of $\pm 10\%$.

4.3 Width and tolerance

4.3.1 Preferred widths

900, 1000, 1500, 2000, 2500, 3000 and 3660 mm.

4.3.2 Tolerance on width

Width, mm		Tolerance ($\pm$) mm
Above	Upto & Includ.	
900	1250	8
1250	2500	20
2500	3000	40
3000	3660	50

Revisions: Aligned with IS:14611

APPROVED:
INTERPLANT MATERIAL RATIONALISATION
COMMITTEE – MRC(T&PM)

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5 MANUFACTURE

The film shall be comprised of several layers of plastic film placed criss-cross over one another and bonded by a special cold-roll technique. Film shall be resistant to most of organic & inorganic chemicals.

'BHEL' emblem of size A40 shall be embossed by thermostatic control on the film at an interval of 1000 mm along the length of the film.

The colour of the emblem shall be Air Craft Blue (Shade No. 108) as per IS: 5 or Black / Red.

One vertical heat sealing joint will be acceptable for films between 1200 mm and 2400 mm at the interval of 1200 mm width.

Two vertical heat sealing joint will be acceptable for films above 2400 mm at the interval of 1200 mm width.

6 APPEARANCE AND FINISH

The film shall be uniform in colour, texture and finish. And also shall be free from pinholes, undispersed raw material, streaks and foreign particles and holes, tears or blisters. The edge shall be free of nicks and cuts to unaided eye.

7 COLOUR

Unless otherwise specified, the film shall be supplied in Natural Colour (essentially colourless) for 35 GSM, yellow colour for 70 GSM & Blue colour for 90 GSM. Any other colour can also be ordered, if agreed mutually.

For film of other average weights, colour shall be as stated on the order.

8 ODOUR

The film shall be free from any objectionable odour.

9 TEST METHOD

The test shall be conducted in accordance with the relevant methods specified in IS: 14611.

10 TEST SAMPLES

One Square metre (1 sq.m) of ordered thickness shall be supplied for testing purpose.



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11 PHYSICAL and MECHANICAL PROPERTIES

SI No.	Characteristic	Requirement					Method of Test, Ref to
		XLN Extra Light	LN Light	MN Medium	HN Heavy	XHN Extra Heavy	
1	Mass per unit area, g/m ² Tolerance: $\pm 10\%$	35 55 60	70 to 100	120 to 150	200 to 250	300	IS 7016 (Part 1)
2	Tensile strength, Min, kg/cm ²						
	Longitudinal direction	250	250	250	250	250	IS 13360 (Part 5/Sec 1) and IS 13360 (Part 5/ Sec 3) Test Conditions - Specimen Type 2 and test speed 500 mm/min
	Transverse direction	200	200	200	200	200	-do-
3	Elongation at break, Min, percent:						
	Longitudinal direction	300	400	400	400	400	-do-
	Transverse direction	250	300	300	300	300	-do-
4	Tear strength, Min, g						
	Longitudinal direction	650	1200	2080	3200	4000	-do-
	Transverse direction	450	900	1600	2800	3500	-do-

12 INSPECTION AT SUPPLIERS' WORKS

Whenever specified, tests and inspection are to be conducted in the presence of BHEL'S representative.

BHEL'S representative shall have free access at all times while the work on the contract is being performed, to all parts of the manufacturer's works.

The manufacturer shall offer BHEL's representative all reasonable facilities without charge to satisfy the latter that the material is being furnished in accordance with this specification. The manufacturer shall prepare and provide necessary test specimens for testing to be carried out at his premises. If facilities do not exist at his works, the manufacturer shall make necessary arrangements for carrying out the prescribed tests elsewhere.

The manufacturer shall notify BHEL's representative in advance about the readiness of the material for inspection and testing.

BHEL reserves the right to test the material at BHEL's works and the final acceptance of the material shall be based on these test results.

13 TEST CERTIFICATES

Three copies of test certificates shall be supplied unless otherwise stated on the order.

In addition, the supplier shall ensure to enclose one copy of the test certificate along with their dispatch documents to facilitate quick clearance of the material. The test certificate shall bear the following information:

- AA51422, Rev 00: MULTILAYERED CROSS LAMINATED POLYETHYLENE FILM FOR NON CRITICAL ITEMS
- BHEL Order No.
- Batch / Lot No.
- Results of dimensional inspection.
- Test results of clauses 11

**14 PACKING AND MARKING**

To be supplied in bundles / packages suitably packed to prevent damage during transit and storage.

- AA51422
- BHEL Order No.
- Manufacturer's name and grade
- Batch No. / Lot No. and date of manufacture
- Average weight, Width, Length and colour
- Net weight of the Bundle / Package

15 REJECTION AND REPLACEMENT

In the event of any film proving defective during the course of preparation, testing, subsequent use, etc. such material shall be rejected notwithstanding any previous certification of satisfactory testing and / or inspection.

The supplier shall under take to replace the rejected film at his own cost and the rejected material shall be taken by the supplier after fulfilling the commercial terms and conditions.

16 REFERRED STANDARDS (Latest Publications Including Amendments)

1. IS: 5
2. IS 7016 Part 1
3. IS 13360 Part 5/Sec 1
4. IS 13360 Part 5/Sec 3