



**PRODUCT MANUAL FOR
PLYWOOD FOR GENERAL PURPOSES
ACCORDING TO IS 303: 1989**

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.	Product	:	IS 303 : 1989
	Title	:	Plywood for General Purposes
	No. of Amendments	:	6
2.	Sampling Guidelines:		
a)	Raw material	:	a) Adhesive – IS 848 b) Extenders – IS 1508
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	Plywood – 1 sheet
3.	List of Test Equipment	:	Please refer ANNEX – B
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	Possible tests in a day :	:	Please refer ANNEX – D
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 303 : 1989 with the following scope:		
	Name of the product	PLYWOOD FOR GENERAL PURPOSES	
	Grade	BWR/MR	
	Type	AA/AB/BB	
	Size	Upto and including _____ ply and _____ thickness.	

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ANNEX A
Grouping Guidelines

1. Plywood for general purposes are classified based on the parameters as given below:
 - a) Grade: BWR and MR
 - b) Types based on appearance: AA, AB and BB
 - c) Number of ply : 3,5,7,9,11 and above
 - d) Thickness based on number of ply: 3 mm to 25 mm and above, and
 - e) Any dimensions as agreed to between the manufacturer and the purchaser are also permitted in addition to the standard dimensions.
2. Requirements for BWR grade is stringent than MR grade plywood, but Mycological test is applicable only for MR grade. Based on appearance type, requirements for type AA is more stringent. Also for manufacturing of more number of ply and plywood of higher thickness, manufacturing capacity and infrastructure required is more critical than plywood with less number of ply and thickness.
3. Considering the above, following grouping guidelines for GoL/CSoL have been developed:
 - a) One sample of any appearance type AA/AB/BB with highest ply, highest thickness and any size for each grade (BWR and MR) shall be tested for all requirements to cover plywood of the appearance type tested and with number of ply and thickness upto and including the tested sample.
 - b) However, if plywood with superior surface quality is tested then lower appearance type may also be covered.
4. The Firm shall declare the varieties of plywood they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing capability and Testing facilities of the Manufacturer.
5. 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 Equipment

Major test equipment essentially required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Dimensions, Squareness and Edge Straightness (Clause 8)	Measuring Tape
		Steel Scale
		Micro Meter
		Vernier Caliper
		Squareness Gauge
		Straight Edge
		Feeler Gauge
2	Static bending test (MOE and MOR Test) (Clause 11.4)	Tensile Testing Machine attached with MOE and MOR attachments and 100 mm. dial gauge
3	Mycological Test (Clause 11.2.2)	Enameled Mycological Tray with Sucrose / Saw Dust
4	Water resistance test (Clause 11.2.1)	Water Bath fitted with digital temperature controller, Knife as per ISS, Stout Table
5	Moisture content (Clause 11.3)	Hot Air Oven - thermostat controlled and fitted with thermometer
		Moisture Meter
6	Adhesive testing (Clause 6.2)	pH Meter
		IS Sieve
7	General test equipments required	Humidity Chamber with thermometer & hygrometer
		Desiccator
		Air Conditioner
		Dry-Wet Thermometer
		Electric Hot Plate
		Chemicals and glassware
		Viscosity Cup

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

ANNEX C

Scheme of Inspection and Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipments.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. LABELLING AND MARKING – As per the requirements of IS 303: 1989

4. CONTROL UNIT – All plywood boards of similar construction, grade and type pressed under similar conditions continuously with same mix of adhesive in one press in a day shall constitute a control unit (Plywood Boards in which the arrangement of veneers is similar as regards thickness and species of timber on both sides of central ply shall be considered to be of similar construction).

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

6. REJECTIONS – 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

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Clause	Test Methods Reference		No. of Sample	Frequency	Remarks
5.1	Classification by appearance	5.1	IS 303	R	All	-	-
5.2 Table 1, Table 2	Quality requirements of surface and number of defects	5.2	IS 303	R	All	-	The visual inspection shall be carried out in a well-lighted place.
6.1	Timber	6.1	IS 303	-	One	Each lot received	Record of each lot of timber received shall be maintained
6.2	Adhesive	6.2	IS 303 IS 848	R	One	Each lot	No testing is required, if accompanied with test certificate or ISI marked.
6.2.1	Extenders	6.2.1	IS 303 IS 1508	S	One	Each lot	
7.2.1	Thickness of veneers	7.2.1	IS 303	R	One	Each lot	-
7.2.3	Grain direction	7.2.3	IS 303	R	All	-	-
7.2.5	Permissible defects	7.2.5.1, 7.2.5.2 7.2.5.3	IS 303	R	All	-	-
8	Dimensions and Tolerances	8.1, 8.2 and 8.3	IS:303	R	5	For each size from each control unit	Samples shall be drawn at regular interval to cover entire production. In case of failure of any sample, entire production shall be checked and only conforming product shall be marked.
9	Workmanship and finish	9.1, 9.2 Annex-C	IS 303	R	All	-	-

11.2.1	Water Resistance Test	11.2.1	IS 303 IS 1734 (Part 5)	R	One	Each control unit	In case of failure, twice the number of samples from same control unit shall be tested and control unit shall be accepted if retested samples found passing.
11.2.2	Mycological Test	11.2.2	IS 303 IS 1734 (Part 7)	R	One sample in a month from each set of species of timber and each grade of plywood		#
11.3	Moisture Content	11.3	IS 303 IS:1734 (Part 1)	R	One	Each control unit	In case of failure, twice the number of samples from same control unit shall be tested. Control unit shall be accepted if retested samples found passing.
11.4	Static Bending Strength	11.4 , Table 4	IS 303 IS:1734 (Part 11)	R	One	Each control unit	In case of failure twice the number of samples from same control unit shall be tested. Control unit shall be accepted if retested samples found passing.

Samples may be drawn in such a manner that all thickness of plywood manufactured are tested over a period of time. In case of failure of sample in mycological test, a thorough check shall be made about the type of glue used and type of preservative added to the glue.

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled 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.

ANNEX D
Possible Tests in a day

- (i) Visual defects & Finish (Cl 5.2)
- (ii) Dimensions & Tolerances (Cl 8)
- (iii) Moisture Content (Cl. 11.3)
- (iv) Glue Adhesion - Water Resistance test (Cl 11.2.1)
- (v) Static Bending Strength (Cl.11.4)