



**उत्पाद मैनुअल
समुद्री उपयोग के लिए प्लाइवुड,
आई एस 710 : 2024 के अनुसार**

**PRODUCT MANUAL FOR
MARINE PLYWOOD
ACCORDING TO IS 710 : 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 710 : 2024
	शीर्षक Title	:	Marine Plywood
	संशोधनों की संख्या No. of amendments	:	Nil
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	The adhesives used for bonding the veneers shall be based on any suitable synthetic resin conforming to BWP Type of IS 848. 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 दिशानिर्देश Grouping Guidelines	:	Please refer to Annex-A
c)	नमूने का परिमाण Sample Quantity	:	Marine Plywood – 1 sheet Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (incase of market surveillance, effort may be made to procure therequired quantity of product sample, as far as possible since raw material sample may not be available in market)

3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer to Annex-B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex-C
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	(i) Manufacture (Clause 5), (ii) Dimensions (Clause 6), (iii) Workmanship and Finish (Clause 7), (iv) Glue adhesion in Dry state (Clause 9.4.1) Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies (OSAs) during factory inspection to provide readyreference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.		
6.	लाइसेंस का दायरा /Scope of the Licence:		
	“Licence is granted to use Standard Mark as per IS 710 : 2024 with the following scope:		
	Name of the product	Marine Plywood	
	Thickness (mm)	Upto and including _____ (mm)	
	Formaldehyde Class	E ₁ / E ₂	
	Steady-State Formaldehyde Emission test (optional test) (Cl 9.12)	With/ without	

भारतीय मानक ब्यूरो
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ANNEX-A

Grouping Guidelines

1. Marine plywood as per IS 710 : 2024 is classified as below:
 - a) Thickness (mm): 3,4,5,6,9,12,15,19,22 and 25
Any other thickness as agreed to between the manufacturer and the purchaser may also be used.
 - b) Formaldehyde Class : *E1 / E2*
 - c) Steady-State Formaldehyde Emission test (optional test) (Cl 9.12) : with/ without
2. Considering the above, the following grouping guidelines for GoL/ CSoL shall be followed:
 - a) One sample of each Formaldehyde Class shall be tested for all requirements in order to cover that particular Formaldehyde Class.
 - b) Highest thickness of plywood shall be tested for all requirements to cover plywood of all thicknesses upto and including the thickness tested.
 - c) One sample of plywood shall be tested for the optional test, i.e. Steady-State Formaldehyde Emission test (Cl 9.12) to cover the same in the scope of licence.
3. The Firm shall declare the varieties of Marine plywood they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
4. The manufacturer shall declare the following:
 - Formaldehyde Class
 - Type of Synthetic resin
 - Dimensions (length, width and thickness) and number of ply
 - Opting for optional requirement - steady-state formaldehyde emission (Cl 9.12)
5. During the operation of the Licence, BO shall ensure that all the types and sizes covered in the Licence are tested in rotation, to the extent possible.

ANNEX-B

List of Test Equipment

(INDICATIVE LIST, FOR GUIDANCE ONLY)

S. No.	Tests used in with Clause Reference	Test Equipment
1.	Adhesive (Clause 4.2)	Moisture Meter Hydrometer Thermometer IS Sieve Electronic Balance pH Meter, Enamelled Tray
2.	Dimensions (Clause 6)	Measuring Tape Steel Scale Micrometer Squareness Straight Edge Feeler Gauge
3.	Moisture content (Clause 5.4)	Hot Air Oven with fan & Temperature control Electronic Balance
4.	Glue Shear strength (Clause 9.4.1)	Saw Cutter Vernier caliper Tensile testing machine
5.	Adhesion of plies (Clause 9.4.2)	Knife as per IS 1734 (Part 5) Stout Table
6.	Water Resistance test (Clause 9.5)	Saw Cutter Vernier caliper Tensile testing machine Knife as per IS 1734 (Part 5) Stout Table Water Bath with temp control & pump
7.	Tensile strength, Static Bending strength and Wet Bending Strength (Clause 9.6, 9.8 and 9.9)	Tensile Testing Machine with load display, Sample cutter Attachment for MOR and MOE tests in tensile machine
8.	Mycological Test (Clause 9.7)	Enameled Tray with Glass Sheet Fungus with spores Saw dust Arrangement to maintain temp at 27+/-2 deg C. Weighing balance Sucrose/ commercial malt extract
9.	Retention of preservative (Clause 9.10)	Mortar with pestle Hot plate Muffle furnace Various glassware Chemical as per IS 2753 (Part 1)
10.	Formaldehyde content test (perforator method)	Toluene, Iodine standard solution,

		Sulphuric acid, Sodium thiosulphate Sodium hydroxide Starch Acetylacetone Ammonium Acetate Weighing balance Drying oven Extraction Apparatus as per fig.1 of IS 13745
11.	General laboratory equipments	Humidity Chamber with thermometer & hygrometer Desiccator Air Conditioner Dry-Wet Thermometer Electric Hot Plate Chemicals and glassware Viscosity Cup

ANNEX C

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 All marine plywood boards of similar construction pressed under similar conditions on the same day in one press from same mix of adhesives shall constitute a control unit (Boards in which the arrangement of veneers is similar as regards thickness and species of timber for face plies shall be considered to be of similar construction).

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.

2.3 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.

2.4 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.

2.4.2 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.

2.5 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.

2.5.2 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.

2.6 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.

2.6.1 Records shall be maintained for each control unit of plywood with the following details:

- Formaldehyde Class, type of synthetic resin, species of timber, thickness & number of ply

3 PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be legibly and indelibly marked on each plywood, provided always that the material so marked conforms to all requirements of the specification.

3.3 Marking shall be done as per the Indian Standard.

3.4 Additional Marking requirements: The material shall also be marked with the following additional requirement on each plywood:

- 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)

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Clause	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
4	MATERIALS						
4.1	Timber	4.1	IS 710	-	One	Each lot received	Record of each lot of timber received shall be maintained
4.2	Adhesive	4.2	IS 710 IS 848	R	One	Each lot manufactured/ received	No further testing is required, if material received with test certificate or ISI Marked.
5	Manufacture	5	IS 710	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		
5.4 & 9.3	Moisture content	5.4 & 9.3	IS 710				
6	Dimensions & Tolerances	6	IS 710				
7	Workmanship and Finish	7	IS 710				
9.4	Glue adhesion in dry state	9.4	IS 710	R	One	Each control unit	
9.5	Water Resistance Test	9.5	IS 710	R	One	Each control unit	
9.6	Tensile strength	9.6	IS 710	R	One	Each control unit	
9.7	Mycological test	9.7	IS 710	S	One sample in a month from each set of species of timber		

9.8	Static Bending Strength	9.8	IS 710	R	One	Each control unit	
9.9	Wet Bending Strength	9.9	IS 710	R	One	Each control unit	
9.10	Retention of preservative	9.10	IS 710	R	One	Each control unit	
9.11	Formaldehyde content, <i>F_c</i> , mg/100 gm for oven dry sample	9.11	IS 710 IS 13745	S	One	Once in a month	Each Formaldehyde Class produced during the period shall be tested
9.12	Steady-state Formaldehyde emission, <i>F_c</i> mg/m ³ (optional test)	9.12	IS 14587 IS/ISO 12460-1	S	One	Once in a year	-