



**PRODUCT MANUAL FOR
PARTICLE BOARDS OF WOOD AND OTHER
LIGNOCELLULOSIC MATERIALS (MEDIUM DENSITY) FOR
GENERAL PURPOSES
ACCORDING TO IS 3087: 2005**

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 3087 : 2005
	Title	:	PARTICLE BOARDS OF WOOD AND OTHER LIGNOCELLULOSIC MATERIALS (MEDIUM DENSITY) FOR GENERAL PURPOSES
	No. of Amendments	:	5
2.	Sampling Guidelines:		
a)	Raw material	:	Adhesive – IS 848
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	One Board for all tests
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 :		
	(i) Dimensions and tolerance (ii) Moisture content (iii) Density (iv) Screw withdrawal test		
6.	Scope of the Licence	:	Please refer ANNEX – D

ANNEX A**Grouping Guidelines**

1 Particle Boards of wood and other lignocellulosic material (Medium density) for general purposes are classified as given below:

Class	Grade	Designation
Flat Pressed Single layer	-	FPS
Flat Pressed Three layer, Multilayer and Graded	I / II	FPT-1 / FPT-2
Extrusion pressed, solid	-	XPS
Extrusion pressed, tubular	-	XPT

2. Each Class and Grade are further sub-classified based on formaldehyde content/emission as Formaldehyde class, E_1 and Formaldehyde class, E_2 .

3. The following are also taken into consideration while evolving the grouping guidelines:

- (a) Any other dimensions (Length and Width) may also be manufactured as agreed to between the purchaser and the manufacturer.
- (b) Requirements specified for Tensile Strength perpendicular to surface are more stringent for Boards with thickness upto 20 mm for class FPT-1.
- (c) For classes FPS, FPT-1 and FPT-2, Screw Withdrawal Strength test for edge is applicable for Boards having thickness above 12 mm.
- (d) For all tests, class FPT-1 is having stringent requirements than class FPT-2.
- (e) For all classes formaldehyde class E_1 is stringent than class E_2 .

4. The following grouping guidelines for GoL/CSoL shall be followed:

- a) One sample from class FPT-1 of thickness above 12 mm and upto 20 mm shall be tested for all requirements in order to cover the complete range of sizes for class FPT-1. If sample upto and including 12 mm is tested, varieties in the licence shall be considered for thickness upto and including 12 mm. If sample of thickness above 20 mm is tested varieties of thickness above 20 mm only shall be considered.
- b) One sample of thickness above 12 mm shall be tested for all requirements in order to cover the complete range of sizes for class FPS and FPT-2. If sample of thickness upto and including 12 mm is tested, varieties in the licence shall be considered for thickness upto and including 12 mm only.
- c) One sample of any thickness from each class XPS and XPT shall be tested for all requirements in order to cover the complete range of sizes for class XPS and XPT.

- d) If sample from Grade I is tested for Flat pressed three layer, Multilayer and graded, Boards of corresponding sizes in Grade II may also be covered.
 - e) If sample of Formaldehyde class, E_1 is tested then corresponding sizes of Boards of Formaldehyde class, E_2 may also be covered.
5. The Firm shall declare the varieties of Particle Boards they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and testing capabilities of the manufacturer.
6. During operation of license, ROs/BOs shall ensure that all the class/grades/sizes covered in the license are tested in rotation, to the extent possible.

ANNEX B**List of Test Equipment***Major test equipment required to test as per the Indian Standard*

S. No.	Tests used in with Clause Reference	Test Equipment
1.	Dimensions and tolerance (Clause 11.2)	Stainless Steel Scale Measuring Tape Vernier Caliper Micrometer Right Angle Straightness gauge
2.	Density (Clause 11.3)	Hot air oven Weighing balance
3.	Moisture content (Clause 11.4)	Hot air oven Weighing balance
4.	Water absorption (Clause 11.5)	Water bath Soluble sealant material such as wax
5.	Swelling in water (Clause 11.6)	Water bath Soluble sealant material such as wax Arrangement for measurement of change in length
6.	Swelling due to surface absorption (Clause 11.7)	Water bath Soluble sealant material such as wax Micrometer
7.	Modulus of Rupture and Modulus of Elasticity (Clause 11.8)	Tensile testing machine with bend facility and with attachment for static bending test and with variable speed Extensometer/Dial gauge
8.	Tensile strength perpendicular to surface (Clause 11.9)	Loading fixture for tension test perpendicular to surface
9	Tensile strength perpendicular to surface (Clause 11.9.1) a) Cyclic test	Loading fixture for tension test perpendicular to surface Hot air oven Water bath
	b) Accelerated water resistance test	Loading fixture for tension test perpendicular to surface Water bath
10	Screw withdrawal test (Clause 11.10)	Screws Tensile testing machine
11	Workability (Clause 9.6)	Cutting tools Saws and sawing tools Drilling machine Tungsten carbide tipped cutter Drum sanding machine Paint and varnish etc.

12	Formaldehyde content/Emission Fc (Clause 9.7)	<p>Precision balance Hot air oven Extraction apparatus Glassware – Volumetric flask Precision burette Pipette Measuring cylinder</p> <p>Reagents – Toulene Sulphuric acid Sodium thiosulfate Sodium hydroxide Starch solution</p> <hr/> <p>Test chamber as per clause 6.1 of IS/ISO 12460-1 Equipments for monitoring test conditions Air sampling system Washing bottles Silica absorber Gas flow valve Gas flow meter Spectrophotometer Water bath Volumetric flask Bulb pipette Micro burette Flasks Weighing balance Acetyl-acetone solution Ammonium acetate solution Iodine solution Sodium thiosulphate solution Sodium hydroxide solution Sulphuric acid Starch solution</p>
13	Adhesive test (Clause 5.2)	Hot water bath Hot air oven Knife as per IS 1734 (Part 5) pH meter
14	General test equipments	Stop watch Thermometer Air conditioner Drill machine Sample cutter Humidity chamber Weighing balance

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 3087: 2005.

4. CONTROL UNIT – Particle Boards of wood and other lignocellulosic materials (Medium density) for general purposes of the same designation (Class and Grade) and formaldehyde class, manufactured with the same batch of adhesive compound during a shift of eight hours subject to a maximum 1000 Boards shall constitute a control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control submitted by the manufacturer 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 Standard 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	Recommended Levels of Control		
Clause	Requirement	Test Methods Clause Reference			No. of Sample	Frequency	Remarks
5.2	Adhesive	5.2	IS 3087 IS 848	S	-	-	No further testing is required if accompanied with test certificate or ISI marked.
5.3	Sizing material	5.3	IS 3087	S	One	Each lot	No further testing is required if received with test certificate.
7	Finish	7	IS 3087	R	Each Board	-	-
8 and 11.2	Dimensions and Tolerances	11.2	IS 3087 IS 2380 (Part 2)	R	Three	Every hour production	In case of failure, all Boards manufactured during the hour shall be checked and only those conforming shall be marked.
9.1, 10.2.1 (a), 11.3 and Table 1	Density	11.3	IS 3087 IS 2380 (Part 3)	R	Two	Each control unit	##
9.2, 10.2.1 (b), 11.4 and Table 1	Moisture content	11.4	IS 3087 IS 2380 (Part 3)	R	Two	Each control unit	
9.3, 10.2.1 (c), 11.5 and Table 1	Water absorption	11.5	IS 3087 IS 2380 (Part 16)	R	Two	Each control unit	
9.4, 10.2.1 (d), 11.6 and Table 1	Swelling in water	11.6	IS 3087 IS 2380 (Part 17)	R	Two	Each control unit	
9.5, 10.2.1 (e), 11.7 and Table 1	Swelling due to surface absorption	11.7	IS 3087 IS 2380 (Part 17)	R	Two	Each control unit	
10.2.1 (f), 11.8 and Table 1	Modulus of rupture and Modulus of elasticity	11.8	IS 3087 IS 2380 (Part 4)	R	Two	Each control unit	

10.2.1 (g), 11.9 and Table 1	Tensile strength perpendicular to surface	11.9	IS 3087 IS 2380(Part 5)	R	Two	Each control unit	##
10.2.1 (g), 11.9.1 and Table 1	Tensile strength perpendicular to surface a) Cyclic test or	11.9.1	IS 3087 IS 2380(Part 5)	S	Two	Once in three months for each type and grade.	@@
	b) Accelerated water resistance test	11.9.1	IS 3087 IS 2380(Part 5)	R	Two	Each control unit	##
10.2.1 (h), 11.10 and Table 1	Screw withdrawal test	11.10	IS 3087 IS 2380(Part 14)	R	Two	Each control unit	##
9.6	Workability	Annex B	IS 3087	R	Two	Each control unit	##
9.7	Formaldehyde content/Emission, <i>F_c</i>	9.7, 9.7.1, or	IS 3087 IS 13745 or	R	Two	Each control unit	## The manufacturer may test the product either for Formaldehyde content or Steady state formaldehyde emission value.
		9.7.2	IS/ISO 12460-1	S	Two	Once in three months for each type and grade	

If both the samples fail, the control unit shall be rejected and shall not be marked. If one sample fails, then two additional samples shall be taken from the same control unit for retesting. If any retested sample fails, the control unit shall be rejected and shall not be marked.

@@ If any sample fails, marking shall be stopped. Marking shall be resumed only after passing of improved lots produced after taking corrective actions. Frequency of testing shall be maintained as once in a month for each type and grade of Boards till three consecutive samples pass and there after original frequency of testing may be restored.

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

Note-2 The control unit and levels of control as decided by the Bureau are obligatory to which the licensee shall comply with.

ANNEX-D**Scope of the Licence :**

“Licence is granted to use Standard Mark as per IS 3087 : 2005 with the following scope:	
Name of the product	PARTICLE BOARDS OF WOOD AND OTHER LIGNOCELLULOSIC MATERIALS (MEDIUM DENSITY) FOR GENERAL PURPOSES
Class and Type	<p>Flat pressed single layer – Designation FPS</p> <p>Flat pressed three layer, } Grade I – Designation FPT-1 Multilayer and graded } Grade II – Designation FPT 2</p> <p>Extrusion pressed solid – Designation XPS</p> <p>Extrusion pressed tubular – Designation XPT</p>
Formaldehyde class	E1/E2
Size	Upto and including --- mm thickness