



PRODUCT MANUAL FOR PRELAMINATED MEDIUM DENSITY FIBRE BOARDS ACCORDING TO IS 14587: 1998

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 14587 : 1998
	Title	:	PRELAMINATED MEDIUM DENSITY BOARDS
	No. of Amendments	:	9
2.	Sampling Guidelines:		
a)	Raw material	:	Medium Density Fibre Board - IS 12406 Impregnated base paper - Clause 5.2 of IS 14587 Impregnated overlay - Clause 5.3 of IS 14587
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) Finish (Clause 7)		
	(ii) Dimensions and tolerance (Clause 8)		
6.	Scope of the Licence : Please refer ANNEX – D		

ANNEX A**Grouping Guidelines**

1. Prelaminated Medium Density Fibre Boards as per IS 14587: 1998 are classified into two Grades namely, Grade I and Grade II in line with grades corresponding to IS 12406. Each of the Grades are further classified into four Types, namely, Types I, II, III and IV based on the surface abrasion characteristics. Each Grade and Type is further sub-classified based on formaldehyde content/emission as Formaldehyde Class E_1 and Formaldehyde Class E_2 .
2. Dimensions and tolerance of Prelaminated Medium Density Fibre Boards are as per IS 12406. However, Boards having any other dimensions may also be manufactured as agreed to between the purchaser and the manufacturer. Requirements specified for Tensile Strength Perpendicular to Surface are more stringent for Boards with thickness upto 20 mm. Within the Grades, Screw Withdrawal Strength Test for Edge is applicable for Boards having thickness 12 mm and above. Also, for all tests Grade I is having stringent requirements than Grade II.
3. Considering the above, Boards are categorized into the following groups based on Grade/Type:

Grade	Type (Based on surface abrasion resistance)	Designation
Grade I	Type I	PLMDF - 11
	Type II	PLMDF - 12
	Type III	PLMDF - 13
	Type IV	PLMDF - 14
Grade II	Type I	PLMDF - 21
	Type II	PLMDF - 22
	Type III	PLMDF - 23
	Type IV	PLMDF - 24

4. For considering GoL/CSoL the guidelines given below shall be followed:
 - a) One sample from each 'Grade' and formaldehyde class with the 'Type' having the highest surface abrasion resistance and any thickness from 12 mm and upto 20 mm shall be tested for all requirements in order to cover the complete range of sizes and type of that Grade.
 - b) If sample from Grade I is tested corresponding sizes and type in Grade II may also be covered.

- c) If sample of thickness below 12 mm is tested, varieties in the licence shall be considered for thickness less than 12 mm only. If sample of thickness above 20 mm is tested, varieties in the licence shall be considered for thickness above 20 mm only.
 - d) 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 Prelaminated Medium Density Fibre 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, BO shall ensure that all the varieties 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 8)	Stainless Steel Scale Measuring Tape Vernier Caliper Micrometer Right Angle Straightness gauge
2.	Density (Clause 10.2)	Hot air oven Weighing balance
3.	Moisture content (Clause 10.3)	Hot air oven Weighing balance
4.	Water absorption (Clause 10.4)	Water bath Soluble sealant material such as wax
5.	Swelling in water (Clause 10.5)	Water bath Soluble sealant material such as wax Arrangement for measurement of change in length
6	Modulus of Rupture and Modulus of Elasticity (Clause 10.6)	Tensile testing machine with bend facility and with attachment for static bending test and with variable speed Extensometer/Dial gauge
7	Tensile strength perpendicular to surface (Clause 10.7)	Loading fixture for tension test perpendicular to surface
8	Tensile strength perpendicular to surface (Clause 10.8) 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
9	Screw withdrawal test (Clause 10.9)	Screws Tensile testing machine
10	Abrasion resistance (Clause 10.10)	Abrasion testing machine Conditioning chamber (27 ± 2 °C and 65 ± 5 RH) Calibration plates of rolled zinc sheet Abrasive paper strips Double sided adhesive tape
11	Resistance to steam (Clause 10.11)	Electric hot palte Glass conical flask Holding clamp
12	Crack resistance (Clause 10.12)	Oven

13	Resistance to cigarette burn (Clause 10.13)	Cigarette Stop watch
14	Formaldehyde content/Emission Fc (Clause 10.15)	<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> <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>
15	Adhesive test	Hot water bath Hot air oven Knife as per IS 1734 (Part 5) pH meter
16	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.

1.1The 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 14587: 1998.

4. CONTROL UNIT – **Prelaminated medium density fibre boards for general purposes of the same designation (Type 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
5.1	Medium density fibre board	5.1	IS 14587 IS 12406	S	Two	Each Lot	No further testing is required if accompanied with test certificate or ISI Marked.
5.2	Impregnated base paper	5.2	IS 14587	S	Two	Each lot	No further testing is required, if received with test certificate.
5.3	Impregnated overlay	5.3	IS 14587	S	Two	Each Lot	
7	Finish	7	IS 14587	R	Each board	-	-
8	Dimensions and Tolerances	8	IS 14587 IS 12406 IS 2380 (Part 2)	R	Three	Every hour production	In case of failure in dimensions, all boards manufactured during the hour shall be checked and only those conforming shall be marked.
9.2 (a), 10.2 and Table 1	Density	10.2	IS 14587 IS 2380 (Part 3)	R	Two	Each control unit	##
9.2 (b), 10.3 and Table 1	Moisture content	10.3	IS 14587 IS 2380 (Part 3)	R	Two	Each control unit	
9.2 (c), 10.4 and Table 1	Water absorption test a) 2 h and b) 24 h	10.4	IS 14587 IS 2380 (Part 16)	R	Two	Each control unit	
9.2 (d), 10.5 and Table 1	Swelling in water test	10.5	IS 14587 IS 2380 (Part 17)	R	Two	Each control unit	

9.2 (e), 10.6 and Table 1	Modulus of rupture (MOR) and Modulus of elasticity (MOE)	10.6	IS 14587 IS 2380 (Part 4)	R	Two	Each control unit	##
9.2(f), Table 1 and 10.7	Tensile strength perpendicular to surface	10.7	IS 14587 IS 2380(Part 5)	R	Two	Each control unit	##
9.2(g), Table 1 and 10.8	Tensile strength perpendicular to surface after ageing test a) Cyclic test or	10.8	IS 14587 IS 2380(Part 5)	S	Two	Once in three months for each type, Class and grade.	@@
	b) Accelerated water resistance test	10.8	IS 14587 IS 2380(Part 5)	R	Two	Each control unit	##
9.2(h), Table 1 and 10.9	Screw withdrawal test	10.9	IS 14587 IS 2380(Part 14)	R	Two	Each control unit	##
9.2(j), Table 1 and 10.10	Resistance to abrasion	Annex B	IS 14587	R	Two	Each control unit	##
9.2(k) and 10.11	Resistance to steam	Annex C	IS 14587		Two	Each control unit	##
9.2(m) and 10.12	Resistance to crack	Annex D	IS 14587		Two	Each control unit	##
9.2(n) and 10.13	Resistance to cigarette burns	Annex E	IS 14587		Two	Each control unit	##
9.2(p) and 10.14	Resistance to stain	Annex F	IS 14587		Two	Each control unit	##
10.15	Formaldehyde content/Emission value	10.15 10.15.1	IS 14587 IS 13745	R	Two	Each control unit	## The manufacturer may test the product either for formaldehyde content or Steady state formaldehyde emission value.
		10.15 10.15.2	IS 14587 IS/ISO 12460-1: 2007	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 , grade/subclass of boards till three consecutive samples pass and there after original frequency of testing shall be resumed.

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 14587 : 1998 with the following scope:	
Name of the product	PRELAMINATED MEDIUM DENSITY BOARDS FOR GENERAL PURPOSES
Grade and Type & Designation	
Formaldehyde class	E1/E2
Size	Upto and including --- mm thickness