



CORPORATE PURCHASING SPECIFICATIONS

AA 21109

Rev. No.04

PREFACE SHEET

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LAMINATED PRECOMPRESSED PRESSBOARD BONDED WITH NON - AQUEOUS AGENT

FOR INTERNAL USE ONLY

REMOVE THIS PREFACE SHEET BEFORE ISSUE TO SUPPLIERS

Comparable Standards:

1. International : IEC: 60763-3-1 : (1992-09), First Edition,
Type: LB 3.1.2

Suggested/Probable Suppliers And Grades

- 1 M/s. Senapathy Whiteley Ltd., Bangalore : Kheddahide - Grade KPC
2 M/s Figeholms Bruk, Sweden : ELBOARD - HD
3 M/s. H.Weidmann Ltd, Switzerland : Transformer Board - T IV
4 M/s. Raman Boards, Mysore

User plants & Replaced Plant Specifications / References:

1. BHOPAL : BP 21198
2. JHANSI : BP 21198

Revisions: Ref. Cl.29.4.2 of MOM of MRC(E)

APPROVED:
INTERPLANT MATERIAL RATIONALISATION
COMMITTEE - MRC(E)

Rev. No.04	Amd. No.	Reaffirmed	Prepared Bhopal	Issued Corp. R&D	Dt. of 1 st Issue Sept.79
Dt:01-01-1998	Dt:	Year:			

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LAMINATED PRECOMPRESSED PRESSBOARD BONDED WITH NON - AQUEOUS AGENT

1.0 GENERAL :

This specification governs the quality requirements of a very hard and rigid laminated Pre-compressed pressboard made from 100% sulphate wood pulp characterized by high purity and mechanical strength and capable of being sheared without showing ragged edges. Its surface bears cloth/mesh marks. The laminates are manufactured by building up laminae of the solid precompressed pressboard complying with CPS No AA 21108 by hot pressing with appropriate non aqueous adhesive free from extraneous matter in the solid plastic state. The material shall also be free from soluble electrolytes such as chlorides, sulphates and carbonates and conducting particles. The material in insulating oil shall have temperature index of at least 105.

2.0 APPLICATION :

Used in transformers, as coil spacers, flat-washers, edge blocks and clamping rings etc.

3.0 COMPLIANCE WITH NATIONAL STANDARDS :

The material shall comply, in general, with the requirements of the following Inter National Standard and also meet the requirements of this specification.

IEC : 60673-3-1 (1992-09)-first edition : Specification for Laminated press board
Type : LB 3.1.2

4.0 DIMENSIONS AND TOLERANCES :

Thickness, width and length of the board shall be as stated on our order.
The sheets shall be rectangular in shape and shall not form a parallelogram. The variation in length of the two diagonals of a sheet shall be within + 5 mm.

4.1 Preferred Thickness :

12, 16, 20, 25, 30, 40 & 50 mm

4.2 Tolerance on thickness :

Upto and including 12 mm : $\pm 5\%$

Above 12 mm : $\pm 4\%$

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4.3 Length and Width

1000 X 3000; 2000 X 3000; 2250 X 2250 and 2500 X 2500 mm and 3100 X 4100mm with a tolerance of $\pm 0.5\%$.

However, any other size can also be ordered

4.4 Bow (Edge Camber):

Lateral departure of the four edges of a sheet from a straight line forming a cord shall not be more than 2 mm

5.0 FINISH :

Shall have matt finish with no irregularities except regular indentations due to wire mesh used during pressing operation

6.0 TEST METHOD :

Unless otherwise stated, when tested in accordance with the relevant methods of IEC 60763-2; "Laminates Pressboard" -Method of test" the test sample shall show the following properties.

7.0 TEST SAMPLE :

Two boards of ordered thickness in 500 x 500 mm size shall be supplied for testing and approval.

8.0 PHYSICAL PROPERTIES :

When tested in accordance with the relevant methods of IEC : 763-2 : Laminated Press Board –

Method of Test. The test samples shall show the following properties.

8.1 Apparent Density : 1.15 to 1.50 g/cni³

8.2 Oil Absorption : 5% minimum

8.3 Moisture Content : 5 % maximum

8.4 Shrinkage In Air :

Machine Direction (MP) : 0.4 % maximum

Cross Direction (XD) : 0.6 % maximum

Thickness (TK) : 4.0 % maximum

9.0 MECHANICAL PROPERTIES

9.1 Flexural Strength

(Cross-Breaking Strength)- Perpendicular To Layers

Machine Direction (MD) : 100 MPa, minimum

Cross Machine Direction (CMD) : 85 Mpa. minimum

Thickness (TK) : 4.0 % maximum



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9.2 Compressibility In Air :

Compressibility (C) : 3% maximum
Reverse Compressibility (C_{Krv}) : 60% minimum

10.0 ELECTRICAL PROPERTIES

10.1 Electric Strength Parallel To Layer,, Method-1, Fig 2 of IEC : 60763-2 for all Thickness:

8 kv/mm, minimum

11.0 CHEMICAL PROPERTIES

11.1 PH of Aqueous Extract:

5 to 8

11.2 Conductivity of Aqueous Extract: 10 mS/m, maximum

12.0 TEST CERTIFICATES:

Unless otherwise stated, three copies of test certificates shall be supplied along each consignment

In addition the supplier shall ensure to send one copy of test certificates along with despatch documents/shipping or packing test to facilitate quick clearance of the material.

The test certificates shall bear the following information:

AA 211 09 (Rev. No.04) . Laminated precompressed press board bonded with non Aqueous Agent.

BHEL Order No.

Manufacturer's / Supplier's name.

Batch/Lot No.

Grade/Trade mark, if any

Thickness, width and length of the board

No. of Boards

Quantity supplied (kg)

Test results for clause 4,5 and 8 & 11

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13.0 PACKING AND MARKING:

Manufacturer's name or identification slips shall be given on each board which shall be compatible with insulating oil to IS : 335/IEC : 296 The boards shall be sealed in polythene sheet which shall then be covered all round with water proof bituminised brown paper and packed in a wooden crate to prevent damage during transit

Each packing case shall be marked with the following information

AA 21109: Laminated Precompressed Pressboard - Bonded with non-Aqueous Agent

BHEL Order No

Manufacturers/Suppliers Name and Grade

Batch/Lot No.

Grade/Trade Mark, if any

Thickness, Width and Length of Board

No. of boards

Quantity supplied (kg)

14.0 REFERRED STANDARDS (Latest Publications Including Amendments):

1) EC: 60763-2

2) IS 335

3) IEC 296