

Laboratory Indian Plywood Industries Research and Training Institute (IPIRTI),
Field Station, 2/2, Biren Roy Road (West), Sarsuna, Kolkata,
West Bengal

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6910 (in lieu of T-1938 & T-1939)

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Validity 15.02.2018 to 14.02.2020

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Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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CHEMICAL TESTING

I. WOOD AND WOOD PRODUCTS				
1.	Plywood for Concrete Shuttering Work	Retention of Preservative Chemical		
		Copper as CuSO ₄ .5H ₂ O Hexavalent	IS 2753 (Part 1): 1991 (RA 2010) Method Cl: 4.4.2	0.5 kg/m ³ to 50 kg/m ³
		Chromium as K ₂ Cr ₂ O ₇	IS 2753 (Part 1): 1991 (RA 2010) Method Cl: 4.4.3	0.5 kg/m ³ to 50 kg/m ³
	Boron as H ₃ BO ₃	IS 2753 (Part 1): 1991 (RA 2010) Method Cl: 6.0	0.5 kg/m ³ to 25 kg/m ³	
2.	Marine Plywood	Retention of Preservative Chemical		
		Copper CuSO ₄ .5H ₂ O Hexavalent	IS 2753 (Part 1): 1991 (RA 2010) Method Cl: 4.4.2	0.5 kg/m ³ to 50 kg/m ³
		Chromium as K ₂ Cr ₂ O ₇	IS 2753 (Part 1): 1991 (RA 2010) Method Cl: 4.4.3	0.5 kg/m ³ to 50 kg/m ³
	Boron as H ₃ BO ₃	IS 2753 (Part 1): 1991 (RA 2010) Method Cl: 6.0	0.5 kg/m ³ to 25 kg/m ³	
3.	Block Boards	Spot test	IS 1659 (RA 2009) Annex-K Method Cl: 9.2.6	Qualitative Visual
4.	Structural Plywood	Retention of Preservative Chemical		
		Copper CuSO ₄ .5H ₂ O Hexavalent	IS 2753 (Part 1): 1991 (RA 2010) Method Cl: 4.4.2	0.5 kg/m ³ to 50 kg/m ³

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		Chromium as $K_2Cr_2O_7$	IS 2753 (Part 1): 1991 (RA 2010) Method Cl: 4.4.3	0.5 kg/m ³ to 50 kg/m ³
		Boron as H_3BO_3	IS 2753 (Part 1): 1991 (RA 2010) Method Cl: 6.0	0.5 kg/m ³ to 25 kg/m ³
5.	Particle Boards of Wood and Other Lignocellulosic Materials	Formaldehyde Content	IS 13745-1993 (RA 2013)	0.5 mg/100gm to 100 mg/100gm
II.	BUILDING MATERIAL			
1.	Synthetic Resin Adhesives for Plywood (Phenolic and Amino Plastic)	BWP GRADE (Cyclic Test) (Boiling Water Proof) Six cycles: Each cycle consisting of 8 hours boiling in water and thereafter drying at $65 \pm 20^\circ C$ for 16 hours	IS 848:2006 (RA 2011)	Qualitative Visual
BWR GRADE (Cyclic Test) (Boiling Water Resistant) Three cycles: Each cycle consisting of 8 hours boiling in water and thereafter drying at $65 \pm 20^\circ C$ for 16 hours		IS 848:2006 (RA 2011)	Qualitative Visual	
MR GRADE (Cyclic Test) (Moisture Resistant) Three cycles: Each cycle consisting of 3 hours at $60 \pm 2^\circ C$ in water and thereafter drying at $65 \pm 20^\circ C$ for 8 hours		IS 848:2006 (RA 2011)	Qualitative Visual	

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		Acidity/Alkalinity (pH of the Aqueous solution)	IS 848:2006 (RA 2011)	4.0 to 12 (pH of the cured film)

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MECHANICAL TESTING

I.	WOOD AND WOOD PRODUCTS			
1.	Plywood for General Purposes	Dimensions & Tolerance		
		Length	IS 303:1989 (RA 2013)	600 mm to 3000 mm
		Width	IS 303:1989 (RA 2013)	600 mm to 3000 mm
		Thickness	IS 303:1989 (RA 2013)	3 mm to 40 mm
		Squareness	IS 303:1989 (RA 2013) Annex C	0.05 mm to 2 mm
		Edge Straightness	IS 303:1989 (RA 2013) Annex C	0.05 mm to 2 mm
		Glue adhesion	IS 1734 (Part 6): 1983 (RA 2003)	Qualitative
		Resistance to water (cyclic test)		Visual
		Adhesion of piles	IS 1734 (Part 5): 1983 (RA 2003)	Qualitative
		Resistance to Micro-organisms, Adhesion of plies	IS 1734 (Part 7): 1983 (RA 2003)	Qualitative
		Moisture content	IS 1734 (Part I): 1983 (RA 2003)	2 % to 20 %
		Modulus of elasticity		
		Along the grain	IS 1734 (Part 11): 1983 (RA 2003)	1 kN to 90 kN
		Across the grain		1 kN to 90 kN
	Modulus of Rupture			
	Along the grain	IS 1734 (Part 11): 1983 (RA 2003)	1 kN to 90 kN	
	Across the grain		1 kN to 90 kN	

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2.	Plywood for Concrete Shuttering Work Marine Plywood	Dimensions & Tolerance			
		Length	IS 4990-2011 /	600 mm to 3000 mm	
		Width	IS 710-2010	600 mm to 3000 mm	
		Thickness		3 mm to 40 mm	
		Squareness	Annex C of IS 4990-2011 /	0.05 mm to 2 mm	
		Edge Straightness	Annex B of IS 710-2010	0.05 mm to 2 mm	
		Moisture content	IS 1734 (Part 1): 1983 (RA 2003)	2 % to 20 %	
		Glue Adhesion Strength in Dry State			
		Glue shear strength	IS 1734 (Part 4): 1983 (RA 2003)	0.1 kN to 18 kN	
		Adhesion of plies (Knife test)	IS 1734 (Part 5): 1983 (RA 2003)	Qualitative Visual	
		Resistance to water (After 72 hr. of boiling)			
		Glue shear strength	IS 1734 (Part 4 & Part 6): 1983 (RA 2003)	0.1 kN to 18 kN	
		Adhesion of plies (Knife test)	IS 1734 (Part 5 & Part 6): 1983 (RA 2003)	Qualitative Visual	
		Resistance to Microorganism			
		Glue shear strength	IS 1734 (Part 4 & Part 7): 1983 (RA 2003)	0.1 kN to 18 kN	
		Adhesion of plies (Knife test)	IS 1734 (Part 5 & Part 7): 1983 (RA 2003)	Qualitative Visual	
		Tensile Strength			
		Along the grain	IS 1734 (Part 9): 1983	5 kN to 180 kN	
		Across the grain	(RA 2003)	5 kN to 180 kN	
		Static Bending Strength			
		Modulus of elasticity Along the grain	IS 1734 (Part 11): 1983 (RA 2003)	1 kN to 90 kN	
		Across the grain		1 kN to 90 kN	
		Modulus of Rupture Along the grain	IS 1734 (Part 11): 1983 (RA 2003)	1 kN to 90 kN	
Across the grain		1 kN to 90 kN			

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		Wet Bending Strength		
		Modulus of elasticity Along the grain	IS 1734 (Part 11): 1983 (RA 2003)	1 kN to 90 kN
		Across the grain	IS 4990-2011 (Cl. 10.1.8)	1 kN to 90 kN
		Modulus of Rupture Along the grain	IS 710 : 2010 (Cl. No. 9.1.7)	1 kN to 90 kN
		Across the grain		1 kN to 90 kN
3.	Veneered Decorative Plywood	Dimensions & Tolerance		
		Length	IS 1328:1996 (RA 2011)	600 mm to 3000 mm
		Width	IS 1328:1996 (RA 2011)	600 mm to 3000 mm
		Thickness	IS 1328:1996 (RA 2011)	3 mm to 40 mm
		Squareness	IS 1328:1996 (RA 2011) Annex C	0.05 mm to 2 mm
		Edge Straightness	IS 1328:1996 (RA 2011) Annex C	0.05 mm to 2 mm
		Moisture content	IS 1734 (Part 1): 1983 (RA 2003)	2 % to 20 %
		Water Resistance test	IS 1328:1996 (RA 2011) Cl 11.1.2.1	Qualitative Visual
4.	Fire Retardant Plywood	Dimensions & Tolerance		
		Length	IS 5509:2006 (RA 2017)	600 mm to 3000 mm
		Width	IS 5509:2006 (RA 2017)	600 mm to 3000 mm
		Thickness	IS 5509:2006 (RA 2017)	3 mm to 40 mm
		Squareness	IS 5509:2006 (RA 2017) Annex A	0.05 mm to 2 mm
		Edge Straightness	IS 5509:2006 (RA 2017) Annex A	0.05 mm to 2 mm
		Flame penetration	IS 1734 (Part 3) (RA 2003)	1 minutes to 300 minutes
5.	Block Boards	Dimensions & Tolerance		
		Length	IS 1659:2004 (RA 2009)	600 mm to 3000 mm
		Width	IS 1659:2004 (RA 2009)	600 mm to 3000 mm
		Thickness	IS 1659:2004 (RA 2009) Annex E	3 mm to 40 mm

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		Squareness	IS 1659:2004 (RA 2009)	0.05 mm to 2 mm
		Edge Straightness	IS 1659:2004 (RA 2009)	0.05 mm to 2 mm
		Dimensional changes caused by humidity	IS 1659:2004 (RA 2009) Annex F	15 mm to 250 mm
		Resistance to water	IS 1659-2004 (RA 2009) Annex G & Annex H	Qualitative Visual
		Adhesion of plies	IS 1659:2004 (RA 2009) Annex H	Qualitative Visual
		Resistance to Micro-organism (Mycological Test)	IS 1659:2004 (RA 2009) Annex J	Qualitative Visual
		Modulus of Elasticity	IS 1659:2004 (RA 2009) Annex K	1 kN to 90 kN
		Modulus of Rupture	IS 1659:2004 (RA 2009) Annex K	1 kN to 90 kN
II.	BUILDING MATERIALS			
1.	Wooden Flush Door Shutter (Solid Core Type)/ Timber Paneled and Glazed Shutters	Dimensions		
		Length	IS 4020 (Part 2): 1998 (RA 2008)	500 mm to 2500 mm
		Thickness	IS 4020 (Part 2): 1998 (RA 2008)	10 mm to 50 mm
		Squareness	IS 4020 (Part 2): 1998 (RA 2008)	0.3 mm to 5 mm
		General flatness	IS 4020 (Part 3): 1998 (RA-2008)	0.03 mm to 10 mm
		Local planeness	IS 4020 (Part 4): 1998 (RA 2008)	0.01 mm to 2 mm
		Impact indentation	IS 4020 (Part 5): 1998 (RA 2008)	0.01 mm to 2 mm
		Flexure test Deflection as max load	IS 4020 (Part 6): 1998 (RA 2008)	1 mm to 100 mm
		Residual deflection		0.5 mm to 15 mm

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		Edge loading test		
		Deflection as maximum load	IS 4020 (Part 7): 1998 (RA 2008)	0.5 mm to 50 mm
		Residual deflection		0.1 mm to 15 mm
		Shock resistance test	IS 4020 (Part 8): 1998 (RA 2008)	Qualitative Visual
		Buckling test		
		Deflection as maximum load	IS 4020 (Part 9): 1998 (RA 2008)	0.5 mm to 50 mm
		Residual deflection		0.5 mm to 50 mm
		Slamming test	IS 4020 (Part 10): 1998 (RA 2008)	Qualitative Visual
		Misuse test	IS 4020 (Part 11): 1998 (RA 2008)	Qualitative Visual
		Screw withdrawal strength	IS 4020 (Part 16): 1998 (RA 2008)	0.1 kN to 180 kN
		End immersion test	IS 4020 (Part 13): 1998 (RA 2008)	Qualitative Visual
3.	Wooden Flush Door Shutter (Solid Core Type)	Glue adhesion test	IS 4020 (Part 15): 1998 (RA 2008)	Qualitative Visual
		Varying humidity test	IS 4020 (Part 12): 1998 (RA 2008)	
		Maximum departure from general planeness		0.1 mm to 5 mm
		Recovery		10 % to 100 %
		Knife test	IS 4020 (Part 14): 1998 (RA 2008)	Qualitative Visual