Miracle
Engineering & Consultancy

HPL EXTERIOR DECORATIVE PANELS

HPL Exterior Decorative Panels shows superior endurance against strong weather conditions; direct sun light, rain, acid rain, wind and friction. The special coating and curing technology ensures the UV resistance and provides colour stabilization, always one step ahead from equivalent products of the competitors.

HPL Exterior Decorative Panels has compliance certificate in accordance with European Standards. Therefore; they comply with entire product and environmental regulations. Besides its superior endurance, it does not contain hazardous materials and it is environment friendly.

HPL Exterior Decorative Panels can be produced in B1 class which has extra fire-resistance feature if requested. decorative panels have 10 years of guarantee and an extensive life span, provided that conditions specified in general specification are followed.

Used for all types of exterior cladding on buildings and structures such as residents, workplaces, business centers, banks, public buildings, sport halls, stadiums, airports and hospitals as well as balcony coatings.

EN Classification		EDS, EDF
EN 438 6/7	Thickness Range	4 mm - 20 mm
	Dimensions	1300x2800 mm / 1300x3050 mm Please contact the customer representative for your different size requests.

Surface of panels is enhanced by using electron beam curing (EBC) technology which is used by limited number of companies around the world.

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Characteristics	Test Method	Tested Value	Required Value
Thickness	EN 438-2 Section 5 4 mm Normal 6 mm Normal 8 mm Normal 10 mm Normal 13 mm Normal 18 mm Normal 22 mm Normal	According to Required Thickness 4.1 mm 6.2 mm 8.1 mm 10.2 mm 13.4 mm 18.3 mm 22.3 mm	 3.0 ≤ t < 5.0 mm : ± 0.3 mm 5.0 ≤ t < 8.0 mm : ± 0.4 mm 8.0 ≤ t < 12.0 mm : ± 0.5 mm 8.0 ≤ t < 12.0 mm : ± 0.5 mm 12.0 ≤ t < 16.0 mm : ± 0.6 mm 16.0 ≤ t < 20.0 mm : ± 0.7 mm 20.0 ≤ t < 25.0 mm : ± 0.8 mm 25.0 ≤ t : contract, Customer / By manufacturer
Surface Quality	EN 438-2 Section 4 Dirt, Punctures and Similar Surface Defects Fiber, Feather and Scratches	 ≤ 2 mm^2/m^2 ≤ 20 mm/m^2	 ≤ 2 mm^2/m^2 ≤ 20 mm/m^2
Density	ISO 1183 - 1	1.43	Min. 1.35 gr/cm^3
Wear Resistance	EN 438-2 Section 10 EDS/EDF	IP = 235 Rev. Wear Value = 400 Rev.	İlk Nokta ≥ 150 Rev. Wear Value ≥ 350 Rev.
Scratch Resistance	EN 438-2 Section 25 EDS/EDF	> 6 N	Textured Surface Min. 3 N
Impact Resistance	EN 438-2 Big Ball Section 21 EDS/EDF t ≥ 6.0 mm	 No Crack, 3.5 mm	 1800 mm Height: No Crack, 10 mm Maks.
Surface Crack 80°c 20 Hours	EN 438-2 Section 24 CGS/CGF	Level 4	Min. Level 4
Resistance to Dry Heat at 180°c	EN 438-2 Section 16 CGS Textured Surface Finish	 Level 5	 Min. Level 4
Resistance to Water Vapor	EN 438-2 Section14 EDS/EDF Textured Surface Finish	 Level 5	 Min. Level 4

Characteristics	Test Method	Tested Value	Required Value
Resistance to Boiling Water	EN 438-2 Section 12 EDS/EDF t ≥ 5.0 mm Textured Surface Finish	 ΔW = 0.5% ΔT = 0.4% Level 5	 Maks. %2 Weight Maks. %2 Thickness Min. Level 4
Resistance To Wet Condition (Immersion in water 65°c; 48 Hours)	EN 438-2 Section 15 EDS/EDF t ≥ 5.0 mm	 ΔW = 1.0% Level 5	 Max. 5% in Weight Color Change Min. Level 4
Resistance to Staining	EN 438-2 26 EDS/EDF Group 1 + 2 Group 3	 Level 5 Level 5	 Min. Level 5 Min. Level 4
Flatness	EN 438-2 Section 9 EDS/EDF 6.0 ≤ t ≤ 10.0 mm	 1.87 mm	 Max. 3 mm / 1 M Length
Light fastness	EN 438-2 Section 27[1] EDS/EDF Grey Scale[4]	 Level 5	 Min. Level 4
Resistance To UV Light 3000 Hour	EN 438-2 Section 28[2] EDS/EDF Grey Scale[4] Contrast Appearance	 Level 4 Level 5	 Min. Level 3 Min. Level 4
Resistance To Artificial Weathering 3000 Hour	EN 438-2 Section 29[1] EDS/EDF Grey Scale[4] Contrast Appearance	 Level 4 Level 5	 Min. Level 3 Min. Level 4

Characteristics	Test Method	Tested Value	Required Value
Dimensional Stability at Elevated Temperature (70°c; 90% RH)	EN 438-2 Section 17 EDS/EDF t ≥ 5.0 mm	L = 0.18% W = 0.36%	L : Maks %0.3 W : Maks. %0.6
Resistance to Climatic Shock	EN 438-2 Section 19 EDS/EDF Appearance Flexural Strength Index Ds Flexural Modulus Index Dm	 Level 5 0.98 0.97	 Min. Level 4 Min. 0.95 Min. 0.95
Resistance To Climatic Changes	Internal Test [5] Appearance	 Level 5	 Min. Level 4
Flexural Strength	EN ISO 178 EDS/EDF	110.7 Mpa	Min. 80 MPa
Flexural Modulus	EN ISO 178 EDS/EDF	9834 MPa	Min. 9000 MPa
Tensile Strength	EN ISO 527 – 2 EDS/EDF	85 Mpa	Min. 60 Mpa
Coefficient of Linear Thermal Expansion (COTE)	ASTM D696-08[3]	6.0 x 10-6 mm/mm °C	—
Thermal Conductivity	ASTM C 518	0.416 W/mK	—
Total Volatile Organic Compound Emission	ASTM D5116	< 0.010 mg/m^2/hr	< 0.5 mg/m^2/hr

Characteristics	Test Method	Tested Value	Required Value
Fire Classification[7]	EN 13501-1		–
	4.0 ≤ t < 5.9 mm 6.0 ≤ t < 10.0 mm	B S2 d0 B S1 d0 ERA - 14 - 095 22.10.2014	–
	ASTM E 84 – 10 06 mm - 10 mm	Class A	–
	BS 476 Part 7 : 1997	Class 1	
	DIN 5510-2:2009-05		
	0.8 mm	S4 ; SR2 ; ST2	
	1.2 mm	S2 ; SR2 ; St2	
Color Difference[8]	ISO 7724	Uni Colors: ΔE ≤ 1.0	–
	Internal Standard[9]	Printed Designs: No Visual Difference	–
Resistance to SO_2[6]	DIN 50018	4 – 5	–
	50 Cycles	Grey Scale	

Instructions:

(1) Based on test method EN ISO 4892-1 and 4892-2.
(2) Based on test method EN ISO 4892-3.
(3) COTE test is conducted between +30°c To -30°c.
(4) Grey Scale assessment according to EN 20105-A02.
(5) Internal test procedure for resistance to climatic changes is available upon Request only.
(6) "Acid Rain" damp heat alternating atmosphere , 50 Cycles (Test Report Upon Request).
(7) Upon Customer request.
(8) The Color Difference refers to the color deviation from the master sample as agreed between Sercor and the customer per batch size (Refer to project batch size).
(9) internal test method for evaluation of color difference in printed designs (Wood Grain / Abstract).