

 **ALUCOSIGN® FR**

ASTM E84-16: CLASS A

PHYSICAL PROPERTIES			
	TEST STANDARD	TOLERANCE	RESULT
			4MM
Panel Thickness	...	(±) 0.2 mm	4.0
Weight of the Panel	...	≥ 7.0 kg/m ²	7.7 kg/m ²
Standard Width	...	(±) 2 mm	1000, 1250, 1500
Length	...	(±) 2 mm	up to 6000 mm Max. 8000 mm
Skin Thickness	...	(±) 0.03 mm	0.30 mm
FIRE PERFORMANCE			
	TEST STANDARD	REQUIREMENT	RESULT / CERTIFICATE REF. NO.
			4MM
Reaction to Fire	EN-13501-1	...	Class B-S1, d0
Surface Burning Characteristics	ASTM E84-6	(FSI) 25-0 (SDI) 450-0	FSI 20, SDI 75 Class A
Product Certificate	TBW 0300185
COIL SPECIFICATION (TOP AND BOTTOM COIL)			
	TEST STANDARD	REQUIREMENT	RESULT
			4MM
Alloy / Temper	ASTM B209	...	1100 - H16
Tensile Strength	ASTM E8	172 - 221 N/mm ²	196 N/mm ²
Yield Strength	ASTM E8	Min. 145 N/mm ²	190 N/mm ²
Elongation	ASTM E8	Min. 1.0 %	4.2%
MECHANICAL PROPERTIES			
	TEST STANDARD	REQUIREMENT	RESULT
			4MM
Peel off Strength @ 180°	ASTM D 1781	≥ 10 kg/ 25mm	≥ 10 kg/ 25mm
Climbing Drum Peel	ASTM D1781	...	45.2 kg/ 25mm
Shear Strength	ASTM C 273	≥ 3.2MPa	4.0 MPa
Tensile strength	ASTM D638	≥ 35MPa for 4mm	56.3 MPa
Elongation (%)	ASTM D638	Measure Value	3.0%
Punch Shear Test	ASTM D 732-99	...	22.37 MPa
Flexural Modulus	BS EN ISO 178:2010+A1:2013	...	25,734 Mpa
Flexural Strength	BS EN ISO 178:2010+A1:2013	...	120.8 Mpa

MECHANICAL PROPERTIES			
	TEST STANDARD	REQUIREMENT	RESULT
			4MM
Deflection Temperature	ASTM D 648	≥ 100 °C	114 °C
Linear Thermal Expansion per 100°C	ASTM D 696	...	160 μm / (m. °C)
Thermal Conductivity	ASTM C 518	Measure Value	0.31 W/ mK
Thermal Resistance		Measure Value	0.014 m² K/W
COATING PROPERTIES AND PERFORMANCE (TOP COAT)			
	TEST STANDARD	REQUIREMENT	RESULT
			4MM
Coating Thickness	ASTM D 1400	≥ 25μm	≥ 25μm
Weathering Resistance	ASTM C 481	A. Shear Strength B. Film Adhesion C. Impact Resistance	A. 3.20 Mpa (after exposure) B.1. Dry Adhesion - No removal of film B.2. Wet Adhesion - No removal of film B.3. Boiling Water - No removal of film C. Impact Resistance - No removal of film
Corrosion Resistance (Humidity Resistance & Salt Spray)	AAMA 2605 ASTN D 2247 ASTM D 714 ASTM B 117	A. Humidity Resistance (@4000 hours exposure) B. Salt Spray Resistance (@4000 hours, 35°C)	A. No formation of blisters B.1 Scribed - rating of 9 B.2. Unscribed - rating of 10
Chemical Resistance	ISO 2812 -1: 2014	A. Acid Resistance B. Alkali Resistance C. Oil Resistance D. Solvent Resistance	A. NO CHANGE B. NO CHANGE C. NO CHANGE D. NO CHANGE
Abrasion Resistance	ASTM D 968	≥ 50 L/mil	52.7 L/mil
T-Bend Test	ASTM D 522	2T (No Cracks)	2T (No Cracks)
Pencil Hardness	ASTM D 3363	≥ H	≥ H
Film Adhesion DRY (@27 °C) WET (@38 °C, 24hrs) BOILING (@100 °C, 20hrs)	AAMA 2605 (Clause 7.4)	No removal of film	No removal of film within or outside of the cross- hatched area; No blistering was observed
Impact Resistance Test 50 kg-cm	AAMA 2605 (Clause 7.5)	No removal of film	No removal of film
REMARK: Coating Performance results are complying with AAMA 2605-13 Requirements			

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COATING PROPERTIES AND PERFORMANCE

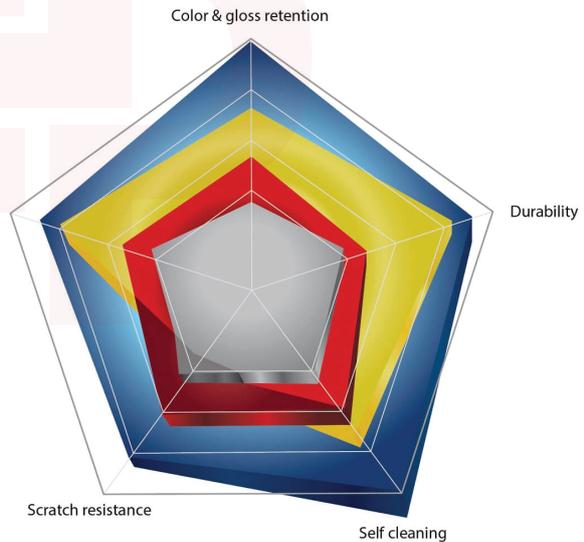
SCHEMATIC DIAGRAM

COATING SYSTEM					DFT			
		FEVE	PVDF	HDPE	PE			
CLEARCOAT	CLEARCOAT	FEVE	PVDF	HDPE	PE	13-15µm		
TOPCOAT	TOPCOAT	PVDF	PVDF	HDPE	PE	18-20µm		
PRIMER	PRIMER	PRIMER				5-7µm		
SUBSTRATE	PRETREATMENT	CHROME				<1µm		
	SUBSTRATE	ALUMINUM				METAL		

COATING GLOSS LIMITATION & COMPARISON WITH VARIOUS COATINGS

GLOSS RANGE (ASTM D 523) STANDARD @ 60°	
FEVE	60 - 90 GU
PVDF	15 - 40 GU
HDPE	15 - 90 GU
PE	20 - 90 GU

- PE
- HDPE
- PVDF
- FEVE



COATING PROPERTIES AND PERFORMANCE (BOTTOM/SERVICE COAT)

	TEST STANDARD	REQUIREMENT	RESULT
Dry Film Thickness	ASTM D 7091	5-7 μ m	6 μ m
Coating Flexibility T-bend Test	ASTM D 4145	\leq 2T	2T
Solvent Resistance Test	ASTM D 4752	Bearable @ 50X Rubbing	> 50 DR
Film Adhesion Test by Crosshatch	AAMA 2605; ASTM D3359-09e2	No Removal of Paint	PASSED
Film Adhesion Test by Boiling Water	AAMA 2605	No Removal of Paint	PASSED
Backside Printing Information & Direction		As per Material Description	PASSED

IMPORTANT NOTE: BACKSIDE OF THE PANELS ARE PRE-COATED AND MAY COME IN DIFFERENT COLORS TO EMBELLISH THE SURFACE APPEARANCE BECAUSE THE BACK OF THE CLADDING IS NOT MEANT FOR DISPLAY PURPOSES.

REPORTS ARE BASED ON THE AVERAGE ANALYSIS RESULT