ALUSTRA FR-B

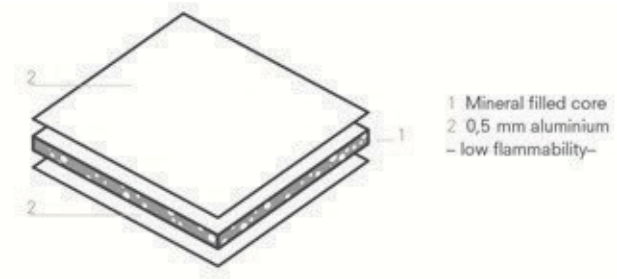
ALUSTRA FR-B is a composite panel consisting of two aluminum sheets with a mineral-filled polymer core, a non-combustible mineral filled core, with no halogen, low smoke and fume.

The properties of this material offer architecture a whole new range of solutions.

ALUSTRA even offers a multitude of application options in the Transport & Industry sector.

ALUSTRA FR-B has been designed to comply with standard of fire behavior as follows:

EN 135011:2007- (EU)	B-s1, d0
BS 476, Part6 / Part7 (UK)	I≤12, i1,2,3 ≤6 and Class 1
ASTM E84 - 12	A, Passed



CHEMICAL ANALYSIS			
Type of mineral filled	MDH: Natural MG(OH)2 \ ATH: AL(OH)3		
Mineral filled percentage	55-75%		
PE	23.5-37.5%		
Other polymeric additives	1.5-7.5%		
PHYSICAL PROPERTIES			
PROPERTIES	UNIT	TEST METHOD	TYPICAL VALUE
Density	g/cm3	ISO 1183	1.37-1.73
MFI (190°C; 21.6kg)	g/10 min.	ISO1133-2-2011	0.8-20
FIRE &SMOKE TEST PROPERTIES			
PROPERTIES	UNIT	TEST METHOD	TYPICAL VALUE
Limited oxygen index	%	ISO 4589-2	27-50
Combustion heat	MJ/KG	ISO 1716-2010	10-20
PCS value of final ACP	MJ/KG	ISO 1716-2010	7-12
Halogen content	%	IEC 60754-1	0
Smoke density	-	IEC 601034	PASSED

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SN.	PROPERTIES	STANDARD	UNIT / REF	3 MM	4 MM	6 MM
Principal Properties						
1	Thickness	-	mm	4 mm		
2	Sheet Skin	-	mm	0.5 mm		
3	Thickness Alloy	-	-	(1100, 3003, 3105, 5005) H16		
4	Weight	-	±0.5 Kg/m²	6	7.5	10
5	Standard width	-	mm	1000, 1250, 1500, 1600		
Product Tolerances						
6	Width	-	mm	±2		
7	Length	-	mm	±3		
8	Thickness	-	mm	±0.2		±0.3
9	Squareness	-	mm	Max 5		
10	Bow	-	%	±0.5		
Mechanical Properties						
11	Tensile Strength of Aluminum	ASTM E8	MPA or N/ mm²	≥ 130		
12	0.2 % Proof stress	ASTM E8	MPA or N/ mm²	≥ 90		
13	Elongation	ASTM E8	%	≥ 5		
14	Modulus of elasticity, E	ASTM C 393	GPA or KN/mm²	70		
15	Rigidity, E^{xI}	ASTM C 393	KN mm²/mm	125	240	240
Acoustical Properties						
16	Sound Transmission Loss	ASTM E413	dB	25	26	
17	Sound Absorption Factor	ISO 354	-	0.05		
Thermal properties						
18	Deflection Temperature	ASTM D648	°C	110		
19	Thermal Resistance R	ASTM C518	m² K/W	0.031		
20	Temperature Resistance		°C	-50 to +80		
21	Linear Thermal Expansion	EN 1999 1-1	mm/m @ 100°C	2.4		

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SN.	PROPERTIES	STANDARD	UNIT / REF	3 MM	4 MM	6 MM
Core Fire Performances						
22	Core	-	-	Excellent Performance Non-Combustible Mineral Field Core		
23	Reaction to Fire	EN 13501-1	-	B, S1, d0		
24	Surface Burning CHARECTERSTICS	ASTM E84	-	Class A / Class 1		
25	Self-Ignition Temp	ASTM D1929	-	Not Less Than 343°C		
26	Exterior Non-Load Bearing Wall Assembly	NFPA 285	-	-	Passed Various Assembly Tests (Listings Reference: **MH-AED-002 & MH-AED-005 Rev 0**)	-
27	Fire Rating	ASTM E 119	-	-	**1hr.42mins**	-
Coating Performances						
28	No of Coats	AAMA 2605-13	-	Standard 2 coat / 3 Coat 70		
29	Type / Finish		-	Standard NANO PVDF / PVDF / FEVE / HDPE		
30	Gloss @ 60°c		%	20-40 / 20-80		
31	Adhesion (Dry Conditions)		-	No Adhesion Loss		
32	Pencil Hardness		-	Min HB		