

TECHNICAL DATA SHEET

FIRE RETARDANT ALCOBOND[®]-A2 (CLASS A2-s1, d0)

PRODUCT COMPOSITION

ALCOBOND[®] A2 is composed of a non-combustible modified mineral core sandwiched between two sheets of 0.5mm coated aluminum.

Skin : 0.5mm Coated Aluminum Sheet
 Core Material : A2-s1, d0 - Non-combustible modified mineral core

DIMENSION, WEIGHT AND TOLERANCE (STANDARD)

Panel Thickness : 4 mm
 Panel Size : Width: 1000 mm, 1250 mm, 1500 mm
 Length: Based upon customer request
 Tolerance : Width \pm 2.0 mm
 Length \pm 3.0 mm
 Thickness \pm 0.2 mm
 Diagonal/Squareness \leq 5 mm
 Warp/Bow \leq 5 mm/m
 Panel Weight : 8.0 \pm 0.6 kg/m²

TECHNICAL PROPERTIES

A. Technical properties of aluminum alloy (3000 series):

PROPERTY	STANDARD METHOD	UNIT	RESULT
Density	-	g/cm ³	2.71
0.2% Proof Stress	ASTM E8	N/mm ²	163
Tensile Strength	ASTM E8	N/mm ²	180
% Elongation	ASTM E8	%	12

B. Technical properties of aluminum composite panel:

PROPERTY	STANDARD METHOD	UNIT	RESULT
Bending Strength	ASTM C393/C393M-16	MPa	110
Bending Elastic Module	ASTM C393/C393M-16	MPa	20,445
Shear Strength	ASTM C393/C393M-16	MPa	25
Shear Strength by Punch Tool	ASTM D732	MPa	22.95
Tensile Strength	ASTM E8	N/mm ²	40
180 deg. Peel Strength	ISO 8510-2 / ASTM D903	N/mm	11
Drum Peel Strength	ASTM D1781-98(2012)	N-mm/mm	106
Sound Transmission	ASTM E90, ASTM E413	STC	30
Air Permeability	BS EN 14509:2013	N/A	Impermeable to air

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THERMAL PROPERTIES

PROPERTY	STANDARD METHOD	UNIT	RESULT
Heat Deflection Temperature	ISO 75-2	°C	89
Linear Thermal Expansion	ASTM D696	um/m°C	130
Thermal Conductivity	ASTM C518	W/mK	0.4516
Thermal Resistance	ASTM C518	m²K/W	0.223

COATING SURFACE PROPERTIES

COATING THICKNESS

Primer	5 um ± 2um
Top Coat	20 um ± 5um
Bottom Coat	7um ± 2um

PROPERTY	STANDARD METHOD	UNIT/SPECIFICATION	RESULT
Gloss Deviation	ISO 2813	≤ 10	2
Pencil Hardness	ISO 15184	≥HB	3H
Coating Flexibility	ISO 17132	No sign of any crack and deformation was observed after 180 degree bending	2T
Adhesion	ISO 2409	No film adhesion failure	Grade 0 (No removal of coating film)
Impact Resistance	ISO 6272	No Cracks	No sign of cracks or debonding observed
Abrasion Resistance	ASTM D 968	L/um	2
Brush Resistance	ISO 11998	Shall be resistant	Resistant
Acid Resistance	ISO 2812-1	Shall be resistant	Resistant
Alkaline Resistance	ISO 2812-1	Shall be resistant	Resistant
Oil Resistance	ISO 2812-1	Shall be resistant	Resistant
Hot Water Resistance	ISO 2812-2	Shall be resistant	Resistant
Humidity Resistance	AAMA 2605-05 Clause 7.8.1	4000 hours Exposure	No formation of blisters
Salt Fog Resistance	ISO 11997-1 (2000 hours)	No cracking, no blistering, no flaking, no spot rusting	Passed
	AAMA 2605 Clause 7.8.2, ASTM D1654, ASTM B117 (4000 hours)		Scribed: Rating 9 Inscribed: Rating 10 (No failure)
Accelerated Weathering	ISO 16474-2	No change	No loss of film adhesion or no visible change in appearance

*Above paint thickness and gloss effect may vary based on the type of paint finish

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FIRE TESTS

FIRE REACTION TESTS

ASTM E84-19a - "Standard Test Method for Surface Burning Characteristics of Building Materials"

ASTM E84-19a Test Result:

FLAME SPREAD INDEX (FSI)	0	CLASS A
SMOKE DEVELOPED INDEX (SDI)	15	CLASS A

BS EN 13501-1:2018 - "Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests"

Test Result for BS EN 13501-1:2018: Classified as **A2-s1, d0**

ASTM D1929-16 - "Self-ignition Test"

Test Result for ASTM D1929-16:

Passed – 471°C (Aluminum Composite Panel)

Passed – 476°C (Core)

ASTM E108 - "Test on Roof Assembly"

Test Result for ASTM E108: Classified as CLASS A

FIRE RESISTANCE TEST

NFPA 285:2019 - "Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components"

Test Result for NFPA 285:2019: The result of the fire performance evaluation conducted on the wall assembly described here in indicates that the test assembly has **met the acceptance criteria** stated in the standard.