FIRESHIELD™

Technical Data Sheet

FIRE RETARDANT FIRESHIELD™-A2 (CLASS A2-s1,d0)

Product Composition

A2 is a type of composite material which is non-combustible, and is enclosed between two thin layers of aluminum that are each 0.5 mm thick. The aluminum sheets can be coated for additional protection and to enhance the material's appearance.

Skin: A2 are made of 0.5 mm coated aluminum sheets.

Core Material: The core is an A2-s1, d0 rated non-combustible modified mineral core.

Dimension,Tolerance & Wieght

Sheet Thickness : 4 mm

Sheet Size : Width: 1000 mm, 1250 mm and 1500 mm

Length : As per customer request

Tolerance : Width ± 2.0 mm
Length ± 3.0 mm
Thickness ± 0.2 mm
Diagonal/Squareness ≤ 5 mm
Warp/Bow ≤ 5 mm/m

Sheet Weight : 8.0 ± 0.6 kg/m²

Technical Properties

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

PROPERTY	STANDARD METHOD	UNIT	RESULT
Density	-	g/cm3	2.71
0.2% Proof Stress	ASTM E8	MPa	≥ 150
Tensile Strength	ASTM E8	MPa	≥ 170
% Elongation	ASTM E8	%	≥ 1

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B.Technical properties of aluminum composite panel:

PROPERTY	STANDARD METHOD	UNIT	RESULT
Bending Strength	ASTM C393/C393M-16	MPa	≥ 100
Bending Elastic Module	ASTM C393/C393M-16	MPa	≥ 2.0 x 10^4
Shear Strength by Punch Tool	ASTM D732	MPa	≥ 22
Tensile Strength	ASTM E8	MPa	> 35
180 deg. Peel Strength	ISO 8510-2 / ASTM D903	N/mm	≥ 7
Drum Peel Strength	ASTM D1781-98(2012)	N-mm/mm	≥ 100
Sound Transmission	ASTM E90, ASTM E413	STC	30
Air Permeability	BS EN 14509:2013	N/A	Impermeable to air

Thermal Properties

PROPERTY	STANDARD METHOD	UNIT	RESULT
Heat Deflection Temperature	ISO 75-2	°C	≥ 100
Linear Thermal Expansion	ASTM D696	µm/m°C	≤ 200
Thermal Conductivity	ASTM C518	W/mK	≤ 0.50
Thermal Resistance	ASTM C518	m^2K/W	≥ 0.06

Surface Coating Properties

COATING THICKNESS	
Primer	7 µm ± 2µm
Top Coat	20 µm ± 2µm
Clear Coat	13 µm ± 2µm
Bottom Coat	7 µm ± 2µm

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Surface Coating Properties

PROPERTY	STANDARD METHOD	UNIT/SPECIFICATION	RESULT
Gloss Deviation	ISO 2813	GU	≤ 10
Pencil Hardness	ISO 15184	-	≥ HB
Coating Flexibility	ISO 17132	No sign of any crack and deformation after 180° 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/µm	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**

Fire Test

FIRE REACTION TESTS REPORT

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 testdata 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^{O}C (Aluminum Composite Panel)Passed – 476^{O}C (Core)

FIRESHIELD™

ASTM E108 - *"Test on Roof Assembly"*

Test Result for ASTM E108: Classified as CLASS A