

INTRODUCTION

SIGNABOND® Aluminum Composite Panel Sheets are lightweight, highly durable, eco-friendly, rigid and quick and easy to fabricate and install. It is a versatile and economical solution for wide range of applications across various industries.

Most commonly used as an architectural interior and exterior wall panel, SIGNABOND® panel sheets are also widely used in the sign industry as corporate identities, directional signs, canopies and monoliths in gas stations. Besides these applications, the panels sheets are also a perfect solution for various applications in D.I.Y and Transportation industries.

The Panel Sheets are available in thickness ranging from 2mm to 6mm, with 3mm and 4mm being the most common. A Light Density Polyethylene (LDPE) core is sandwiched between two skins of aluminum in various alloy options. The panel surface is roller coated with durable paint options such as PVDF, FEVE, HDPE or PE paint.

SIGNABOND core Panels are NOT FIRE RATED and should not be used as façade or cladding panels.

Our Fire-Resistant FR (B1) core or FR (A2) Core panels are, subject to local fire safety and other regulations in the relevant jurisdiction/ country, suitable for façade and cladding applications.

1. Product Composition

SIGNABOND® Panel sheets are composed of a recycled LDPE core sandwiched between two skins of 0.50mm, 0.40mm or 0.30mm aluminium.

Composition

Top/Bottom Skins: 0.40mm, 0.30mm thick aluminum coil.

Core material: LDPE Recycled Core(Non-Fire Rated)

SIGNABOND® Panels are coated with a PVDF Kynar 500/Hylar 5000 fluorocarbon coating as a standard, and the reverse side of the panel is coated with a primer coat to protect against corrosion.

SIGNABOND® core Panels can also be supplied in other paint coating types such as

— NANO PVDF

— High Durable Polyester (HDPE)

— FEVE

— Polyester (PE)

SIGNABOND® can be supplied in various alloy options

— 1100 (Standard)

— 3003, 3105 (Optional)

— 5005, 5052 (Optional)

SIGNABOND® core Panels are available in wide range of standard and custom colours and various finishes:

— Solid Colours,

— Sparkling Colours

— Metallic Colours

— Speciality Colours & Finishes

Please request for a copy of our colour chart and physical color matching samples prior to confirming colors.

DIMENSION & SIZES

SIGNABOND® is most commonly produced in 4mm overall thickness, but can also be produced and supplied in 2mm, 3mm, and 6mm thickness.

2. Products Dimension & Tolerance

(1) Panel thickness:	2mm, 3 mm, 4 mm, 5mm and 6 mm
(2) Standard Widths:	1220 mm (48"), 1250 mm (49.2"), 1500mm (59.05")
(3) Special Widths:	1525 mm (60"), 1575 mm (62"), 2000 mm (78.75")
(4) Length:	less than 5700 mm recommended for ease of transportation and handling. If longer lengths are required it can be supplied subject to surcharges.

Note: Special & Custom widths can be produced based on MOQ, extra costs and longer delivery times, please check on delivery schedules for custom widths.

Products Tolerance			
Width:	±2.0 mm	Diagonal Difference:	Maximum 3.0 mm for length ≤ 4000mm
Length:	±3.0 mm		Maximum 5.0 mm for length ≤ 6000mm
Thickness:	±0.2 mm		
Surface defect:	The coated surface of SIGNABOND® core Panels shall be free from irregularities such as roughness, buckling and other imperfections in accordance with our visual inspection rules as outlined in our Product Broucher. SIGNABOND® core Panels will be supplied with smooth cut edges without any burrs and displacement of the core.		

3. Principal Properties

(1) Panel weight:

Panel Weight	Unit	3mm (0.30mm)	4mm (0.30mm)	4mm (0.40mm)	4mm (0.50mm)	6mm (0.50mm)
	Kg/m ²	4.65	5.80	6.00	6.20	8.80
	lb/m ²	10.25	12.79	13.23	13.67	19.4

(2) Sound transmission loss (ASTM E413):

Thickness	4mm	6mm
STC (Standard Transmission Class)	26	27

(3) Mechanical Characteristics of 0.50mm alloy aluminium skin

Tensile Strength	≥ 150 N/mm ²
0.2% proof stress (ASTM E8):	≥ 120 N/mm ²
Elongation	≥ 4%
Modulus of Elasticity (ASTM E8):	70,000 N/mm ²

4. SIGNABOND® core Panels, Mechanical & Technical Properties

NO	Test item	Test method	Test result
1	Flexural Strength & Flexural modulus	ASTM D790-10	Flexural Strength 116MPa Flexural Modulus: 14698MPa
2	Shear Strength	ASTM D732-10	28.2MPa
3	Tensile strength & Elongation at Break	ASTM E8/E8M-13a	Tensile strength : 45.2MPa Elongation at break:12.9%
4	Core shear Stress & Core Shear Modulus	ASTM C273/C273-11	Core shear stress: 6.32MPa Core shear Modulus: 55.3MPa
5	Flexural Shear Strength – 3 point Mid-span loading	ASTMC393/C393M-11	Flexural Shear Strength (longitudinal):1.36MPa Flexural Shear Strength (Transverse): 1.52MPa
6	Flatwise Compressive Strength & Compressive Modulus	ASTM C365/C365M-11a	Stress at 10% Deflection: 2.0 MPa Compressive modulus:20.1MPa
7	Impact test	ASTM D2794-93(2010)	Impact failure end point: 3.13kg m

NO	Test item	Test method	Test result
8	Peel torque	ASTM D1781-98(2010)	Peel torque (Longitudinal): 15.4mm.kgf/mm Peel torque (Transverse): 16.6mm.kgf/mm
9	Deflection Temperature Under Load	ASTM D648-07	Deflection Temperature Under Load: 98.4 °C
10	Mean Coefficient of linear Thermal Expansion	ASTM E831-2014	Mean Coefficient of Linear Thermal Expansion: 430.4 $\mu\text{m}/(\text{m} \cdot ^\circ\text{C})$
11	Pencil Hardness	ASTM D3363-05(2011)	Scratch hardness: H
12	Thermal Conductivity and Thermal resistance	ASTM C518-10	Thermal conductivity: 0.104 W(m.K) Thermal resistance:0.039 (m ² .K)/W
13	Conductance of Linear thermal expansion	ASTM D696-08	-30°C~30°C : 68.38×10^{-6} 1/°C

5. Coating

(1) Coating Systems & Tolerances

1. SIGNABOND® core Panels are coated using high quality paints from world-renowned suppliers such as PPG, Becker, Valspar & Nippon. By following the strict guidelines and recommended coating methods of our paint suppliers, we can ensure that the coating on our Panel Sheets is free from any coating irregularities .
2. SIGNABOND® PVDF coated panel sheets are coated with a 2 or 3 coat PVDF system. The 2 coat systemt has a 26 μm (+/-2 μm) coating whilst the Almaxco PVDF 3 coat system has a 30 μm (+/-2 μm) coating thickness for maximum durability, weatherability and corrosion resistance for the use in external applications.
3. SIGNABOND® FEVE coated Panel Sheets are coated with a 3-coat system and have a 30 μm (+/-2 μm) coating thickness for maximum durability, weatherability and corrosion resistance for the use in external applications.
4. SIGNABOND® Nano PVDF coated Panel Sheets are coated with a 3-coat system and have a 30 μm (+/- 2 μm) coating thickness for maximum durability, weatherability and corrosion resistance for the use in external applications. The Nano coat increases the durability and weatherability of panel sheets to reduce the fading and gloss loss of the paint coating.

(2) Paint Options

SIGNABOND® PVDF

Polyvinylidene fluoride (PVDF) coating is a highly durable, UV resistant paint technology made from Kynar 500/Hylar 5000 PVDF resins. This resin based paint coating not only enhances the durability, design versatility and aesthetic possibilities of a project but also protects the metal surface from corrosion. Its extraordinary capability to retain color and gloss keeps the painted aluminum surface looking vibrant and appealing for years and resists chalking, pitting, chipping and premature aging.

Architects around the world prefer to use Kynar 500/ Hylar 5000 PVDF resin-based coatings as it provides the necessary protection and prevents corrosion to the aluminum surface. No other coating system withstands the rigors of nature and time like those based on Kynar 500 / Hylar 5000 PVDF resins.

PVDF coating are recommended for applications where there will be direct exposure of sunlight on the surface of the Panels in exterior applications.

Gloss Range: 20% - 40% (Standard is 30% Gloss)

SIGNABOND® FEVE

Fluoroethylene vinyl ether (FEVE) resins were developed in Japan in the early 1980's. It is a second-generation fluoropolymer coating with a similar resin based paint technology as Kynar 500/Hylar 5000 and it offers similar levels of durability, weatherability, adhesive force, flexibility, and color and gloss retention as PVDF coatings. The main difference between these two exterior coating technologies is that PVDF resin based coating has a limitation on the maximum gloss it can achieve of 20%-40%, FEVE coatings on the other hand, can achieve a wider gloss range of 20%-70%. The primary applications for panels sheets coated with FEVE resins are for architectural and outdoor signages, where high gloss and durability are important. FEVE coatings also offer excellent chalking and corrosion resistance.

Gloss Range: 20% - 70%

SIGNABOND® NANO

Signabond's NANO Coated Aluminum Composite Panels sheets are produced using a new and exciting NANO PAINT technology. A Clear water soluble Nano Coat is applied over our 2 or 3 Coat PVDF coating to enhance the performance of the coated panels weatherability and durability resulting in longer color and gloss retention. The Nano coat changes the molecular structure of the paint by sealing off any air gaps between connecting molecules making the surface both lipophobic and hydrophobic (Oil & Water Resistant). This prevents dirt, water, permanent spray paint (Graffiti), carbon monoxide, grease, oil or any foreign particles to penetrate through the paint surface. In addition, the NANO Coating is a non-toxic, VOC EMISSION FREE coating system, which makes the surface self-cleaning and repellent to air-borne pollutants.

Gloss Range: 30% - 50%

(3) Custom Colours

Signabond offers its customers with the ability to match any color a customer, architect or client desires. We can match any RAL, Pantone or other custom colors to make your projects stand out from the rest of the pack in most of the paint types we supply.

All we require of our customers is to send us a color sample coated on any metal surface and we can get our paint suppliers to match that particular color to 99% accuracy. We would require a physical coated sample to custom match a color or to receive a RAL or Pantone code.

The turn around time for custom color matching is usually 5 to 7 days from the time we receive the sample, plus the courier transit time to send the sample back to the customer.

Color matches are made on aluminium skin only (not the aluminium composite panel sheet) and are meant for color approval only. Once the color is approved by the customer and the order is placed with us, we can then produce the actual order with approved custom color.

6. Paint Coating Standard

The quality of the coating conforms to AAMA 2605-07 standard.

Test item	Criteria
Gloss: (ASTM D532-89)	20% - 45%
Weather-o-metre test	
Colour retention: (ASTM D2244-87(85))	E<5
Gloss retention: (ASTM D2244-93)	84.20%
Chalk resistance: (ASTM D4214-89)	No chalking. Max value: 8 unit
Pencil hardness: (ASTM D3363-00)	2H

Test item	Criteria
Adhesion (ASTM D3359-87) Dry / Wet / Boiling water:	No change
Abrasive resistance: (ASTM D968-81)	50-80 KTR No Crack
Impact resistance: (NCCA 11-5)	No picking off after reverse impact test with cross-cutting
Salt spray resistance:	4000hr No blister
Humidity resistance: (ASTM D714-87)	4000hr No blister

7. Protection Film

SIGNABOND® core Panels are protected with a self-adhesive peel-off protective film on the coated side. It is recommended that the protective film be peeled off within 45 days of installation on a project. The protective film should not be peeled prior to installation and or during fabrication to prevent damage to coated surface.

8. Cleaning

Fluorocarbon coatings are smooth thus do not retain much dirt, therefore the dirt and soil depends largely on the surrounding atmospheric conditions where the building exists. In order to remove light soil, it is recommended to do a small area first to determine the degree of cleaning actually necessary to accomplish the task.

A forceful water rinse from the top to down is recommended as an initial step of tests. The low water volume with moderate pressure is much better than the considerable water volume with little pressure. A mild detergent or 5-10% IPA solution is used for removing soil, it should be used with soft sponges and/or soft rags. The washing should be done with uniform pressure, and normally the operation is done with a horizontal motion first and then with a vertical motion. After washing, the surface should be thoroughly rinsed with clean water, and the rinsed surface left to dry or wiped with squeegee or lint-free cloth.

A mild solvent such as IPA or ethanol may be used to remove stubborn stains as those caused by sealant and caulking compounds. When alcohol is used, it is safe to dilute less than 50% with water. If undiluted solution is required, pre-tests should be done at the small invisible area, to confirm no damage to the finish. Cleaner containing abrasives cannot be used.

Do not use strong organic solvents, such as MEK (Methyl Ethyl Ketone), MIBK (Methyl Iso butyl Ketone), Triclene and paint thinner. Do not use strong alkali, strong acid and/or abrasive cleaners. If these solvents and cleaners be used, the paint may be removed.

Make sure that cleaning sponges or rags are grit-free, to prevent the coated surface from scratch. Avoid over cleaning or excessive rubbing.

9. Warranty

The manufacturer shall warrant the Aluminium Composite Panel (ACP) finishes under normal atmospheric conditions for a period of between 3 years. The warranty will be subject to terms and condition set out in the Manufacturers standard warranty. Request a copy of the full warranty from our Sales Team.

Disclaimer

Signabond disclaims all and any liability for any loss or damages, including for any injuries, loss of life, loss of panels, loss of profits, loss of goodwill and any other tangible or intangible loss, arising from or in connection with the use of the panels by the buyer or by any third party that does not comply with all applicable fire safety and other regulations in the relevant jurisdiction / country. It is the responsibility of the buyer and/or its architect, builder, fabricator and/or installer to ensure that the panels used meet all local fire safety and other regulations in the relevant jurisdiction / country.

SIGNABOND is proudly manufactured by :



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