

Mitsubishi Plastics Composites America, Inc.

# ALPOLIC<sup>®</sup>

## MATERIALS

### 1. Product Name

ALPOLIC<sup>®</sup> Aluminum Faced Composite Panel

### 2. Manufacturer

Mitsubishi Plastics Composites America, Inc.  
401 Volvo Parkway  
Chesapeake, VA 23320  
(800) 422-7270  
Fax: (757) 436-1896  
E-mail: [info@alpolic.com](mailto:info@alpolic.com)  
[www.alpolic-northamerica.com](http://www.alpolic-northamerica.com)

### 3. Product Description

#### BASIC USE

ALPOLIC<sup>®</sup> is a lightweight, rigid, bendable and durable aluminum faced composite panel widely used as an interior and exterior wall cladding in commercial and institutional applications. It offers flexibility in design through a wide variety of fabrication techniques, including panels into curves, angles and pan configurations.

#### COMPOSITION & MATERIALS

ALPOLIC panels consist of a core of thermoplastic material thermally bonded to face sheets fabricated of aluminum 3105 H14 alloy, 0.020" (0.5 mm) thick or an equivalent.

#### TYPES

Several types of ALPOLIC panels are available including:

- ALPOLIC standard panels
- ALPOLIC A-LOOK<sup>®</sup> reflective finish panels
- ALPOLIC Stone Series simulated stone finish panel
- ALPOLIC copper mill finish panels
- ALPOLIC anodized classic finish panels

#### SIZES

ALPOLIC panels are available in 3, 4 and 6 mm thicknesses in standard widths of 50" and 62" (1270 and 1575 mm) and in standard lengths of 122", 146" and 196" (3099, 3708 and 4978 mm).

A range of custom sizes is available:

- Width - 32" - 62" (813 - 1575 mm)
- Length - 76" - 24' 2" (1930 - 7366 mm)

#### FINISHES

- Lumiflon<sup>®</sup> FEVE resin based fluoropolymer coil coat meets the performance require-

ments of AAMA 2605 (standard)

- Polyester
- Class I anodized - Clear and dark bronze

Standard ALPOLIC with Lumiflon FEVE fluoropolymer finishes are available in a broad spectrum of gloss levels, from 15 - 80%. Contact the manufacturer for minimum quantities and availability. Lumiflon, in its ambient cure spray product, allows close-matching field touch-up and recoat.

A-LOOK Series offers an array of reflective surfaces for interior and exterior application. Stocked colors are chrome, gold and bronze.

Stone Series is a simulated stone fluoropolymer finish combined with fluoropolymer colors in white marble and red, pink, white and black granite finishes.

ALPOLIC Lumiflon FEVE colors are available in full gloss range with minimum 1000 ft<sup>2</sup> (93 m<sup>2</sup>) coil coated orders. Allow 8 weeks for shipment of custom colors.

Complete custom color matching, available in ALPOLIC Lumiflon FEVE coatings, is subject to minimum order quantities.

A selection of stock fluoropolymer colors is available in a quick ship program in 4 mm panel thickness.

Quick Ship stock 4 mm thick ALPOLIC panel selections. Contact Mitsubishi Plastics Composites America, Inc. (MPCA), customer service for color and size availability.

#### SHAPES & FABRICATION

ALPOLIC panels can be cut, routed and formed with conventional woodworking tools. Angle bends are formed by routing the back of the panel prior to shaping. The common pan shape is formed by routing the back edges, trimming the corners and bending and reinforcing the edges.

ALPOLIC can be rolled on a pyramid or 4-stand roll bender to a curved shape for curved corners or column covers. Bumping on a press brake also can be used to produce a curved surface.

The bending radius of ALPOLIC 4 mm panels is as small as 2" (51 mm). Corner radii can be detailed as small as 1/8" (3.2 mm) using the back routed method described in ALPOLIC literature.

### 4. Technical Data

#### APPLICABLE STANDARDS

American Architectural Manufacturers Association (AAMA) - AAMA 2605 Voluntary Specification, Performance Requirements and



Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels

#### ASTM International

- ASTM C297 Standard Test Method for Tensile Strength on Flat Sandwich Constructions in Flatwise Plane
- ASTM C976 Standard Test Method for Thermal Performance of Building Assemblies by Means of a Calibrated Hot Box (Withdrawn 2002)
- ASTM D635 Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position
- ASTM D696 Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C With a Vitreous Silica Dilatometer
- ASTM D1037 Standard Test Method for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials
- ASTM D1781 Standard Test Method for Climbing Drum Peel for Adhesives
- ASTM D1929 Standard Test Method for Determining Ignition Temperature of Plastics
- ASTM E8 Standard Test Method for Tension Testing of Metallic Materials
- ASTM E72 Standard Test Methods for Conducting Strength Tests of Panels for Building Construction
- ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E108 (Modified) Standard Test Methods for Fire Tests of Roof Coverings
- ASTM E283 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure



**Difference Across the Specimen**

- ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
- ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference
- ASTM E413 Standard Classification for Rating Sound Insulation

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**PHYSICAL/CHEMICAL PROPERTIES**

See Table 1.

**FIRE PERFORMANCE**

See Table 2.

**5. Installation**

**PREPARATORY WORK**

The manufacturer recommends field measurement prior to fabrication. Verify alignment of surfaces to receive panels.

**APPLICATION**

ALPOLIC surfaces can be attached to one another or to other materials by conventional methods of attachment - rivets, bolts or screws. For interior installation, flat surfaces of ALPOLIC can be attached to substrates such as gypsum board using double-faced tape or nonhardening adhesive.

**PRECAUTIONS**

ALPOLIC panels are prefinished architectural products requiring care in handling to avoid

**TABLE 1 PHYSICAL PROPERTIES**

Properties	ALPOLIC		A-LOOK	
	4 mm	6 mm	2 mm	3 mm
Aluminum thickness, in (mm)	0.020 (0.5)	0.020 (0.5)	0.010 (0.25)	0.010 (0.25)
Weight, psf (kg/m <sup>2</sup> )	1.12 (5.5)	1.50 (7.32)	0.59 (2.9)	0.80 (3.9)
Coefficient of expansion, ASTM D696, in/in*F (mm/mm/°C)	13 x 10 <sup>-6</sup>	13 x 10 <sup>-6</sup>	13 x 10 <sup>-6</sup>	13 x 10 <sup>-6</sup>
Tensile strength, ASTM E8, psi (MPa)	6913 (48)	4978 (35)	-	-
Yield strength, ASTM E8, psi (MPa)	6429 (44)	4466 (30)	-	-
Elongation	13.5%	17.5%	-	-
Thermal conductance, ASTM C976, Btu/(ft <sup>2</sup> x h x °F) (W/(m <sup>2</sup> x K))	10.75 (18)	8.53 (14)	-	-
Drum peel, ASTM D1781, in-lb/in (N-mm/mm)	22.5 (100)	22.5 (100)	-	-
Thermal resistance, ft <sup>2</sup> x h x °F/Btu (m <sup>2</sup> x K/W)	0.09 (0.016)	0.12 (0.021)	-	-
Sound transmission coefficient, ASTM E413	26	26	-	-
Accelerated aging, ASTM D1037	Pass	-	-	-

**TABLE 2 FIRE PERFORMANCE PROPERTIES**

Properties	ALPOLIC	
	4 mm	6 mm
Surface burning characteristics, ASTM E84		
Smoke developed index	0	10
Flamespread index	0	0
Vertical transmission, ASTM E108 (modified)	Passed	Passed
Ignition temperature, ASTM D1929		
Flash ignition	716°F (380°C)	
Self-ignition	752°F (400°C)	
Rate of burning, ASTM D635	CCI	-

damage to the finish. Handle, store, install and clean panels following the manufacturer's instructions. Comply with manufacturer's recommendations regarding expansion and contraction in detailing and installing ALPOLIC.

**6. Availability & Cost**

**AVAILABILITY**

ALPOLIC panels are available worldwide through the regional offices of Mitsubishi Plastics Composites America, Inc. Contact Mitsubishi for the location of an area ALPOLIC representative.

**COST**

Contact the area representative or the Mitsubishi Plastics Composites America, Inc., home office for ALPOLIC pricing. Costs vary due to project size, finish selection and panel sizes.

**7. Warranty**

Contact the manufacturer for information on panel and finish warranties.

**8. Maintenance**

LUMIFLON FEVE fluoropolymer is a long-term, maintenance-free finish. Under normal exposure and use, it is self-cleaning through rain washing. Water flush or power washing with a mild detergent is recommended to remove heavy soil.

**9. Technical Services**

Contact ALPOLIC for technical assistance with design and specification or for the name of a nearby representative.

**10. Filing Systems**

- Reed First Source
- MANU-SPEC®
- Additional product information is available from the manufacturer.