

**T E C H N I C A L
I N F O R M A T I O N**

ALPOLIC[®]
ALPOLIC[®]/fr
MATERIALS

 **MITSUBISHI PLASTICS COMPOSITES AMERICA, INC.**

ALPOLIC® TECHNICAL INFORMATION

Impact resistance by Dupont method

		ALPOLIC®		
		Dent depth (x10 ² in)		
Steel Ball	Height	3mm .118"	4mm .157"	6mm .236"
1.10 lb	20 in	6.30	5.51	3.15
2.20 lb	12 in	7.87	6.69	3.93
2.20 lb	20 in	10.23	9.05	5.90

Bond Integrity

			ALPOLIC®		
			Total thickness		
Property	Unit	ASTM	3mm .118"	4mm .157"	6mm .236"
Vertical Pull	psi	C-297	1906	1806	1664
Drum Peel	in-lb/in	D-1781	33.6	33.6	33.6
Flatwise Shear	psi	C-273	1259	1225	1195

Engineering properties

			ALPOLIC®		
			Total thickness		
Property	Unit	ASTM	3mm .118"	4mm .157"	6mm .236"
Aluminum Thickness	in	—	.020	.020	.020
Specific Gravity	—	—	1.52	1.38	1.23
Weight	lbs/ft ²	—	0.93	1.12	1.50
Coefficient of Expansion	in/in/°F	D-696	13x10 ⁻⁶	13x10 ⁻⁶	13x10 ⁻⁶
Thermal Conductance	BTU/hr/°F/ft ²	C-1363	12.29	10.75	8.53
Tensile Yield Strength	psi	E-8	8321	6429	4466
Tensile Strength	psi	E-8	8747	6913	4978
Elongation	%	E-8	12.1	13.5	17.3
Flexural Elasticity	psi	C-393	7110x10 ³	5770x10 ³	4220x10 ³
Flexural Stiffness	psi	C-393	1.04x10 ⁹	1.99x10 ⁹	4.98x10 ⁹
Punching Shear Resistance					
Maximum Load	lbs	D-732	1847	1920	2121
Shear Resistance	psi	D-732	4950	4025	2816
Deflection Temperature	°F	D-648	231.8	231.8	231.8
Sound Transmission Coefficient	STC#	E-90	25	26	26

The technical information provided herein is intended to provide users and potential users with general product information; this information should not be used as specifications for ALPOLIC®. Product specifications and product warranty are available upon request from Mitsubishi Plastics Composites America, Inc. The use of ALPOLIC® and all activities related thereto are the sole responsibility of the user. Always consult local building codes before use. Nothing contained herein is intended to or shall be construed as a warranty, express or implied, including, but not limited to, warranty of merchantability or fitness for a particular purpose, as to ALPOLIC®. ALPOLIC® is a registered trademark of Mitsubishi Plastics, Inc.

Surface Treatments:

Standard ALPOLIC® with a polyethylene core is available in the following finishes: FEVE (LUMIFLON™) with a wide color and gloss range and PVDF, both fluoropolymer finishes tested to meet AAMA 2605, polyester, and class 1 anodized. Other available ALPOLIC® finishes include Stone / Timber Series, Copper (CCM), Zinc (ZCM), Stainless Steel (SCM) and Titanium (TCM) faced composites.

Standard panel sizes

50" x 146" 62" x 146"
50" x 196" 62" x 196"

Range of sizes

Width 32.5"—62" (826mm—1575mm)
Length 6'—24' 2" (1829mm—7315mm)

Product Tolerance:

Width: ± 0.08" (2mm)
Length: ± 0.16" (4mm)
Thickness:
3mm: ± 0.008" (0.2mm)
4mm: ± 0.008" (0.2mm)
6mm: ± 0.012" (0.3mm)
Bow: maximum 0.5% of length and/or width

Squareness maximum: 0.2" (5mm)

ALPOLIC® material is trimmed and squared with cut edges to offer the best panel edge conditions in the industry.

Fire Performance:

Standard ALPOLIC® with a polyethylene core has been tested by independent testing laboratories using the following nationally recognized fire tests.

ASTM E84

Flame spread 3mm: 05
 4mm: 00
 6mm: 00
Smoke developed 3mm: 15
 4mm: 00
 6mm: 10

ASTM E108 modified

4mm: passed
6mm: passed

ASTM D1929

Flash: 4mm: 716°F
Ignition: 4mm: 752°F

ASTM D635

Rate of burning: 4mm: Classified CC1

ASTM E162

Flame spread index 6mm: 11

UL-94

3mm: V-O rating

CODE Evaluation Reports*

1. City of Los Angeles
2. ICC ES
3. Miami Dade Notice of Acceptance
4. Florida Building Code Approval
5. UL Approval

* Report numbers are available at:
www.alpolic-northamerica.com/pages/downloads.php

ALPOLIC®/fr TECHNICAL INFORMATION

ALPOLIC®/fr with a mineral filled core offers the same flatness, rigidity, workability, formability and quality features of standard ALPOLIC®. ALPOLIC®/fr is curvable to a 6" radius and can be joined with hot melt adhesive to form complex shapes. In addition, ALPOLIC®/fr is available in the same full palette of bright, clean colors and gloss ranges as standard ALPOLIC®, as well as Stone Series and Anodized.

Extensive fire performance laboratory testing by independent testing agencies in accordance with requirements set forth by BOCA, SBCCI, ICBO and IBC has established ALPOLIC®/fr approval on Type 1, 2, 3, 4 and 5 Construction throughout the United States and Canada when used as a wall cladding material.

Fire Performance:

ALPOLIC®/fr (fire resistant) has been tested by independent testing laboratories using the following nationally recognized fire tests.

ASTM E84:

Flame spread: 4mm: 00
Smoke Developed: 4mm: 10
Flame spread: 6mm: 00
Smoke Developed: 6mm: 00

ASTM E162:

Flame spread index: 4mm: 0

ASTM E108 modified: Passed

ASTM 1929:

Flash: 4mm: 811°F
Ignition: 4mm: 837°F

UBC 26-9, intermediate scale multi story apparatus test:

4mm: passed
6mm: passed

ASTM E119:

4mm: passed

UBC 26-3:

4mm: passed

(Corner Test)

CAN/ULC S 134M:

4mm: passed

UBC 17-2, potential heat release:

4mm: <6000 BTU/ft²

Combustion gas toxicity per University of Pittsburgh: "No more toxic than wood."

Code Evaluation Reports*

1. City of Los Angeles Report
2. ICC ES
3. ICBO ES
4. Miami Dade Notice of Acceptance
5. Florida Building Code Approval
6. New York City – (ACM)
– (SCM)
– (TCM)
7. CAN/ULC S102 & S134

* Report numbers are available at:
www.alpolic-northamerica.com/pages/downloads.php

Impact resistance by Dupont method

Steel Ball	Height	ALPOLIC®/fr Dent depth (x10 ² in)	
		4mm .157"	6mm .236"
1.10 lb	20 in	5.07	3.93
2.20 lb	12 in	5.47	4.72
2.20 lb	20 in	7.40	6.30

Bond Integrity

Property	Unit	ASTM	ALPOLIC®/fr Total thickness	
			4mm .157"	6mm .236"
Vertical Pull	psi	C-297	427	
Drum Peel	in-lb/in	D-1781	27.6	
Flatwise Shear	psi	C-273	949	

Engineering properties

Property	Unit	ASTM	ALPOLIC®/fr Total thickness	
			4mm .157"	6mm .236"
Aluminum Thickness	in	—	.020	.020
Specific Gravity	—	—	1.90	1.81
Weight	lbs/ft ²	—	1.56	2.23
Coefficient of Expansion	in/in/°F	D-696	13x10 ⁻⁶	13x10 ⁻⁶
Tensile Yield Strength	psi	E-8	6344	3840
Tensile Strength	psi	E-8	7126	4266
Elongation	%	E-8	5.0	2.0
Flexural Elasticity	psi	C-393	5770x10 ³	4220x10 ³
Flexural Stiffness	psi	C-393	1.93x10 ⁹	4.98x10 ⁹
Punching Shear Resistance				
Maximum Load	lbs	D-732	2259	—
Shear Resistance	psi	D-732	4637	—
Deflection Temperature	°F	D-648	241.8	228.8

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