

MITSUBISHI PLASTICS COMPOSITES AMERICA, INC.

ALPOLIC®  
MATERIALS

*Let's Build*

WE UNDERSTAND

# TECHNICAL

TECHNICAL BROCHURE

## ALPOLIC®/PE TECHNICAL INFORMATION

### IMPACT RESISTANCE BY DUPONT METHOD

		ALPOLIC®/PE		
		DENT DEPTH (x10 <sup>-2</sup> 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®/PE		
			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®/PE		
			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 <sup>2</sup>	-	0.93	1.12	1.50
Coefficient of Expansion	in/in/°F	D-696	13x10 <sup>-6</sup>	13x10 <sup>-6</sup>	13x10 <sup>-6</sup>
Thermal Conductance	BTU/hr/°F/ft <sup>2</sup>	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 <sup>3</sup>	5770x10 <sup>3</sup>	4220x10 <sup>3</sup>
Flexural Stiffness	psi	C-393	1.04x10 <sup>9</sup>	1.99x10 <sup>9</sup>	4.98x10 <sup>9</sup>
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

### SURFACE TREATMENTS

Standard ALPOLIC®/PE 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 and Timber Series and Reflective Finishes (RF).

### 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®/PE material is trimmed and squared with cut edges to offer the best panel edge conditions in the industry

### FIRE PERFORMANCE

Standard ALPOLIC®/PE 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:	4mm	0
---------------	-----	---

#### UL-879

		listed
--	--	--------

#### UL-94

	3mm	V-O rating
--	-----	------------

#### CODE Evaluation Reports\*

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

\* Report numbers are available at:  
[www.alpolic-americas.com/en/building-codes](http://www.alpolic-americas.com/en/building-codes)

## ALPOLIC®/fr TECHNICAL INFORMATION

### IMPACT RESISTANCE BY DUPONT METHOD

		ALPOLIC®/fr	
		DENT DEPTH (x10 <sup>-2</sup> IN)	
STEEL BALL	HEIGHT	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

		ALPOLIC®/fr	
		TOTAL THICKNESS	
PROPERTY	HEIGHT	ASTM	4MM .157"
Vertical Pull	psi	C-297	427
Drum Peel	in-lb/in	D-1781	27.6
Flatwise Shear	psi	C-273	949

### ENGINEERING PROPERTIES

		ALPOLIC®/fr		
		TOTAL THICKNESS		
PROPERTY	UNIT	ASTM	4MM .157"	6MM .236"
Aluminum Thickness	in	-	.020	.020
Specific Gravity	-	-	1.90	1.81
Weight	lbs/ft <sup>2</sup>	-	1.56	2.23
Coefficient of Expansion	in/in/°F	D-696	13x10 <sup>-6</sup>	13x10 <sup>-6</sup>
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 <sup>3</sup>	4220x10 <sup>3</sup>
Flexural Stiffness	psi	C-393	1.93x10 <sup>9</sup>	4.98x10 <sup>9</sup>
Punching Shear Resistance				
Maximum Load	lbs	D-732	2259	—
Shear Resistance	psi	D-732	4637	—
Deflection Temperature	°F	D-648	241.8	228.8

### SURFACE TREATMENTS

ALPOLIC®/fr (fire-retardant) with a mineral filled core offers the same flatness, rigidity, workability, formability and quality features of standard ALPOLIC®/PE. 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®/PE, as well as Stone Series, Anodized and Natural Metals. Extensive fire performance laboratory testing by independent testing agencies in accordance with requirements set forth by 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-retardant) 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
Flame spread:	6mm	00

#### ASTM E162

Flame Spread:	4mm	0
---------------	-----	---

#### ASTM E108 MODIFIED

Passed

#### ASTM 1929

Flash:	4mm	811°F
Ignition:	4mm	837°F

### NFPA 285, INTERMEDIATE SCALE MULTI STORY APPARATUS TEST:

4mm	passed
6mm	passed

#### ASTM E119

4mm	passed
-----	--------

#### CAN/ULC S 134M

4mm	passed
-----	--------

### NFPA 259, POTENTIAL HEAT RELEASE

4mm	<6000 BTU/ft <sup>2</sup>
-----	---------------------------

### COMBUSTION GAS TOXICITY PER UNIVERSITY OF PITTSBURGH

"No more toxic than wood."

### CODE EVALUATION REPORTS\*

- ICC ES
- City of Los Angeles Report
- Miami Dade Notice of Acceptance
- Florida Building Code Approval
- New York City (ACM)  
(SCM)  
(TCM)
- CAN/ULC S102, S134 & S135
- ASTM E84 & E119
- NFPA 285

\* Report numbers are available at:  
[www.alpolic-americas.com/en/building-codes](http://www.alpolic-americas.com/en/building-codes)



# EFFECTUAL

Let us know how we can help you make your design idea a reality. Get more information, order finish samples and find a fabricator by calling 1-800-422-7270 or visiting [alpolic-americas.com](http://alpolic-americas.com).

*Let's build.*

