

Summary of Technical Data Sheet – ALPOLIC™/fr LT

The material properties and data in this document are portrayed as general information for reference only and are not product specifications. Due to product changes, improvements and other factors, Mitsubishi Chemical Infratec Co., Ltd. reserves the right to change or withdraw information contained herein without prior notice.

1. General

ALPOLIC™/fr LT is an Aluminum Composite Material (ACM) with a sufficient fire safety, suitable for interior walls, columns, ceilings and partitions of shops, offices and factories. Its application is not only on interior field, but also on light outdoor field including soffits, awnings, parapets and signs. Besides, this material is applicable to such civil works as internal linings of tunnels. ALPOLIC™/fr LT is manufactured by Mitsubishi Chemical Infratec Co., Ltd. and is furnished by approved distributors and authorised dealers.

Note: Technical data may be changed in part without affecting the material quality.

2. Product composition

ALPOLIC™/fr LT is composed of a fire-retardant core with sandwiched between two skins of 0.3mm thick aluminium.

Composition	Skin material:	0.3mm thick aluminum (1100-H14) (or 5205-H19 for N-7 Aluminum Hairline P)
	Core material:	mineral-filled fire-retardant core

The effective sides are finished with polyester coatings. “Reversible” has effective sides on both top and back. “Single, Stone and Timber” have an effective side on top and a wash coating on back. Refer to “6 Paint Finish” below. The effective sides are protected with a translucent self-adhesive / peel-off film.

3. Product dimension and tolerance

- (1) Panel thickness: 3 mm
(2) Panel size in stock: The available panel size depends on the finishes as shown below.

Type	Code	Finish	Stock size, mm (in)	Remarks
Reversible	R-1	Pure White P (G90) / Silver P (G80)	1220×2440	Both top and back are effective sides.
	R-2	White P (G30) / Champagne Metallic P (G30)		
	R-3	Light Beige P (G30) / Silver Metallic P (G30)		
	R-4	Black P (G30) / Polished Beige P (G90)		
Single	M-5	Off White P (Matte)	1220×2440	Top is effective side and back is wash coating.
	M-6	Gray Metallic P (Matte)		
	N-7	Aluminum Hairline P (G90)	914×2438	
	N-8	Piano Black P (G90)	1220×2440	
Stone	S-5	White Marble (G90)	1220×2440	
	S-6	Venetian Marble (G90)		

Timber	W-1	Maple (Matte)	1220×2440	
	W-2	Walnut (Matte)		
	W-3	Mahogany (Matte)		

Note: Custom width is available between 914mm and 1575mm except N-7 Aluminum Hairline P and Timber finishes (W-1, W-2, and W-3). For N-7 Aluminum Hairline P, custom width is available between 914mm and 1220mm. For Timber finishes of W-1 Maple, W-2 Walnut, and W-3 Mahogany custom width is available between 914mm and 1270mm. Custom length less than 5000mm can be accepted. Please contact our sales office or distributors for the minimum quantity and the lead-time of the custom size products.

(3) Product tolerance

Width:	±2.0mm
Length:	±1.0 mm/ m
Thickness:	±0.2mm
Bow:	Maximum 0.5% of the length and/or width
Squareness:	Maximum 5.0mm (diagonal difference)
Surface defect:	The surface shall not have irregularities such as roughness, buckling and other imperfections in accordance with our visual inspection rules.
Panel edge:	ALPOLIC/fr LT is supplied with a cut edge out of aluminum sheet displacement and core protrusion.

4. Principal properties

- (1) Panel weight: 5.5 kg/m²
- (2) Thermal expansion: 24×10⁻⁶ m/m/°C
- (3) Mechanical properties as a composite material, ALPOLIC/fr LT

Tensile strength (ASTM E8)	30 MPa or N/mm ²
Yield strength (ASTM E8)	27 MPa or N/mm ²
Elongation (ASTM E8)	4 %
Flexural Elasticity (Calculation)	33 GPa or kN/mm ²

(4) Mechanical properties of skin aluminum:

	1100-H14	5205-H19 (for N-7)
0.2% proof stress	115 MPa or N/mm ²	210 MPa or N/mm ²
Modules of elasticity	70 GPa or kN/mm ²	70 GPa or kN/mm ²

5. Summary of fire tests

ALPOLIC/fr LT comprising of 0.3 mm thick skin has passed the following fire tests:

Country	Test Standard	Specimen Thickness	Results & Classification
United Kingdom	BS476 Part 6	3 mm	Class 0
	BS476 Part 7		Class 1
USA	Tunnel Test (ASTM E-84)	3 mm	Class A / Class 1
	Interior Room Corner Test (UBC 26-3 and ISO 9705)	3 mm	Passed
Japan	Heat Release Test for Non-combustible Material (ISO5660-1) and Toxicity Gas Test	2 - 4 mm	Passed Certificate No. NM-1972

6. Paint finish

(1) Finish type

The finishes can be classified into the following coating types:

Coating type	Finishes
Solid Color	Pure White P (G90), White P (G30), Light Beige P (G30), Black P (G30), Polished Beige P (G90), Off White P (Matte), Piano Black P (G90)
Metallic Color	Silver P (G80), Champagne Metallic P (G30), Silver Metallic P (G30), Gray Metallic P (Matte)
Clear	Aluminum Hairline P (G90)
Stone	White Marble (G90), Venetian Marble (G90)
Timber	Maple (Matte), Walnut (Matte), Mahogany (Matte)

Custom colors and custom gloss are available, subject to minimum quantities and color match. Please contact distributors or our office for custom color request.

(2) Coating system

Each finish type has the following coating system of polyester paint:

- Solid and Metallic: 3-coat / 3-bake system consisting of primer and top coating.
- Clear: 2-coat / 2-bake system consisting of transparent primer and top clear coating.
- Stone and Timber: Coated with a unique image transfer process. The coating consists of primer, image transfer layer and top coating.

Matte finish is produced with a unique coating in which microscopic wrinkles emerge over the entire coated surface during baking of the paint. Thus, Matte finishes have uniform and fine wrinkles over the surface.

All these coatings are produced in the manufacturer's continuous coil coating line.

(3) Paint performance

The coating meets the following performance:

Test item	Test method	Performance
Paint thickness		17 microns min.
Gloss:	60° specular gloss (ASTM D523-89)	Matte to 90%
Pencil hardness:	(ASTM D522-88)	>= H
Adhesion (Cross-cut)	Adhesion (Cross-cut)	100/100 (Cross-cut)
Impact resistance:	Du-pont method, 0.5kg, 1/2 inch, 50cm, Backside impact test	No picking off
Water resistance:	50 °C, tap water, 24 hrs.	100/100 (Cross-cut)
Boiling water resistance	98-100°C, pure water, 4 hrs.	100/100 (Cross-cut)
Humidity resistance:	240 hrs, 98% RH, 50°C (ASTM D2247-87)	No blister, no pick off
Alkali resistance:	1% NaOH, 20°C, 24hrs.	No blister, no pick off
Acid resistance:	5% H ₂ SO ₄ , 20°C, 24hrs.	No blister, no pick off
Salt spray resistance:	1000 hrs, salt fog, 35°C	No blister, no pick off
Solvent resistance:	MEK, 20°C, 24hrs.	No blister, no pick off
Detergent resistance:	Detergent "Surf", 25g/30L, 20°C, 24hrs.	No blister, no pick off
Pollution resistance:	Lip stick, eye shadow, 24 hrs. After wiping off with IPA.	No blister, no pick off
Accelerated weathering test:	QUV, 500 hrs.	No blister, no pick off

Note

As part of its rigorous quality assurance procedures, Mitsubishi Chemical Infratec Co., Ltd. ("MCIT") conducts visual inspections of ALPOLIC products during the manufacturing process. If any imperfections are identified, the products will undergo a pre-shipment inspection in accordance with the test methods specified in AAMA 2605: *Voluntary Specifications, Performance Requirements, and Test Procedures for Superior Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix)*. Only products that, in MCIT's sole discretion, pass this inspection will be shipped.

The relevant standard in AAMA 2605:

5.0 GENERAL

5.2 Coatings shall be visibly free from flow lines, streaks, blisters or other surface imperfections in the dry-film state on exposed surfaces when observed at a distance of 3 m (10 ft) from the metal surface and inspected at an angle of 90 degree to the surface.