

Summary of Technical Data Sheet - ALPOLIC®/fr-RF

1. General

ALPOLIC®/fr-RF is a mirror-look reflective finish aluminum composite material (ACM) with a non-combustible mineral-filled core, used as ceiling or interior wall applications. The material is manufactured by Mitsubishi Plastics, Inc., and furnished by approved dealers or distributors.

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

2. Product composition

ALPOLIC/fr-RF is composed of a non-combustible mineral-filled core sandwiched between two skins of 0.5mm thick aluminum alloy:

Composition Skin material: 0.5mm thick aluminum alloy (top 1085, back 3105)
 Core material: Non-combustible mineral filled core (gray)

The surface is a mirror-look anodized finish, and the back side is a polyester-based wash coating or a service coating. The surface is protected with a transparent self-adhesive peel-off protective film.

3. Product dimension and tolerance

- (1) Panel thickness: 3 mm
- (2) Standard size: Width = 1220 mm Length = 2440 mm

Note: The maximum panel width is 1220mm. As for custom length please contact local distributors or our office.

(3) Product tolerance

Width: ±2.0 mm
 Length: ±4.0 mm
 Thickness: ±0.2 mm
 Bow: Maximum 0.5% (5mm/m) of the length or width
 Square-ness (diagonal difference):
 Maximum 5.0 mm

Surface defect: The surface shall not have any irregularities such as roughness, buckling and other imperfections in accordance with our internal visual inspection standards. ALPOLIC/fr-RF is supplied with a cut edge and without aluminum sheet displacement or core protrusion.

4. Principal properties

ALPOLIC/fr-RF has the following properties.

- (1) Specific gravity: 2.0
- (2) Panel weight (unit weight): 6.0 kg/m²
- (3) Thermal expansion: 25×10⁻⁶/deg.C
- (4) Thermal conductivity: 0.95 W/m·K
- (5) Reflectance (JIS D5705): 83%
- (6) Mechanical properties of Aluminum Composite Material (ACM):

Property	Unit	ALPOLIC/fr-RF
Tensile strength (ASTM E8)	N/mm ²	56
Flexural elasticity, E (ASTM C393)	N/mm ²	48000
Vickers hardness - top surface (JIS D5705)	Hv	45
Impact resistance (DuPont method, 300g-100mmH)		No breaking

5. Summary of fire tests

ALPOLIC/fr-RF has passed the following fire test.

Country	Test standard	Results & classification
Japan	Heat Release Test for Non-combustible Material (ISO 5660-1) & Toxicity Gas Test	Passed. Certificate No. NM-3415

6. Surface finish

The mirror-look surface is an electrolytically brightened anodized finish, and the back side is a wash coating or a service coating. The back side coating protects it from possible corrosion problems.

The finish performances are summarized in the following table.

Test item	Test method	Result
Durability		
Salt spray resistance:	JIS Z2371, 240hrs	No change
Water immersion	50degC, 240hrs	No change
Boiling water immersion	100degC, 8hrs	Color change (turned to dark)
Humidity resistance	50degC-98%RH, 240hrs	No change
Heat resistance	80degC, 200hrs	No change
Heat cycle test	JIS D5705, +80 to -30degC, 2cycles	No change
Scratch resistance		
Cotton cloth wipe	2kg load, 10 strokes	No damage
Paper cloth wipe	2kg load, 10 strokes	Very slight scratch marks
Scotch Brite wipe	0.5kg load, 10 strokes	Slight scratch marks
Chemical resistance		
Sulphuric acid	5% H ₂ SO ₄ , 24hrs at room temp.	Color change
Sodium hydroxide	5% NaOH, 24hrs at room temp.	Aluminum skin melted
Mortar pat test	48hrs	Aluminum skin melted
Ether immersion	24hrs	No change
Solvent immersion	Benzene, 24hrs	No change
Formalin immersion	JIS A4402, 240hrs	No change

7. Cleaning

Please use a neutral detergent for a stubborn stain, rinse with tap water, and wipe with a soft cloth.

8. CAUTIONS

- Do not use an acid, alkaline detergent, and an abrasive cleaner. Avoid dry wiping on the dirty surface which may cause damages.

- Forming: Due to a brittle anodized layer ALPOLIC/fr-RF cannot be bent or curved. It may cause crazing on the surface.

The material properties or the test data in this leaflet are portrayed as general information only and a guide without warranty. Due to product changes, improvements and other factors, Mitsubishi Plastics, Inc. reserves the right to change or withdraw information contained herein without prior notice.

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