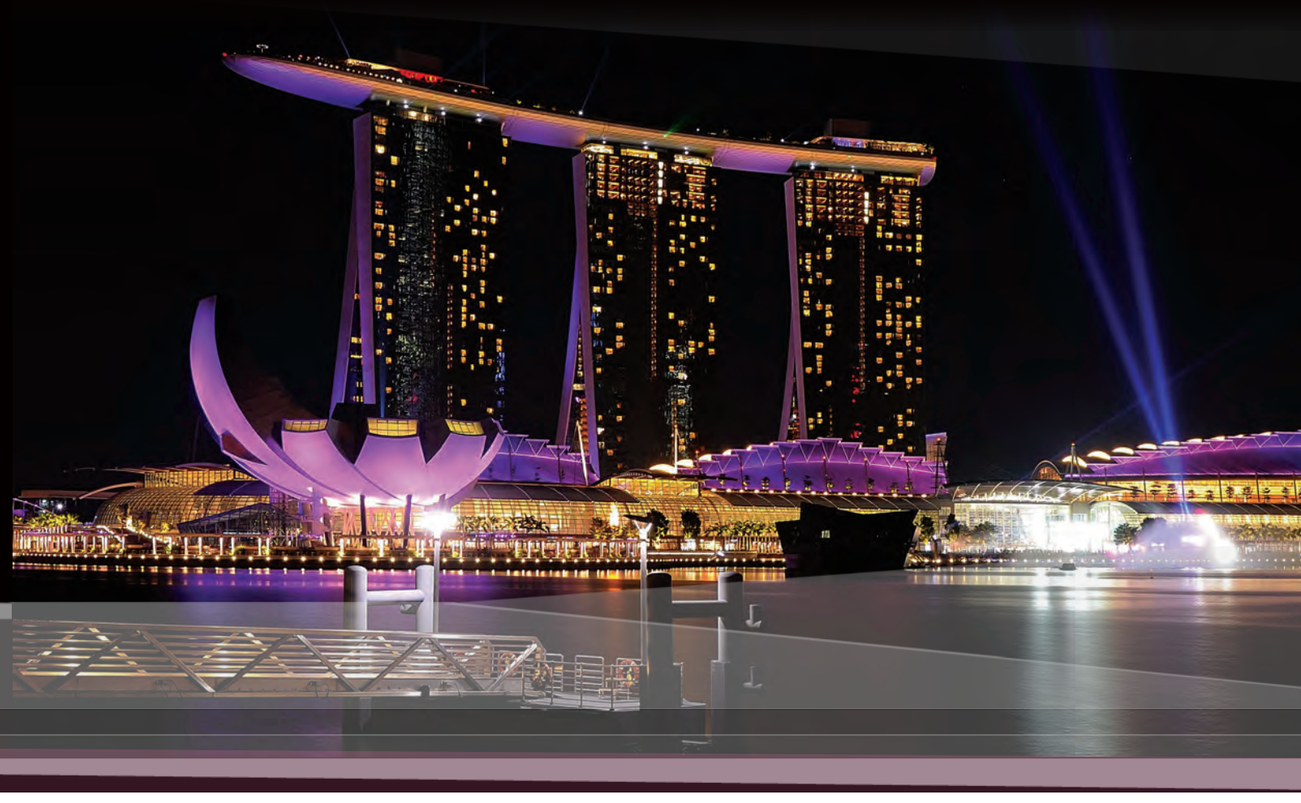
YOU CAN MAKE IT EVERYWHERE

ALPOLIC™ can be easily formed into any shape you want. It is exceptionally flat and our paint coating process guarantees the highest color quality.



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www.alpolic.com

ALPOLIC™

June 2025

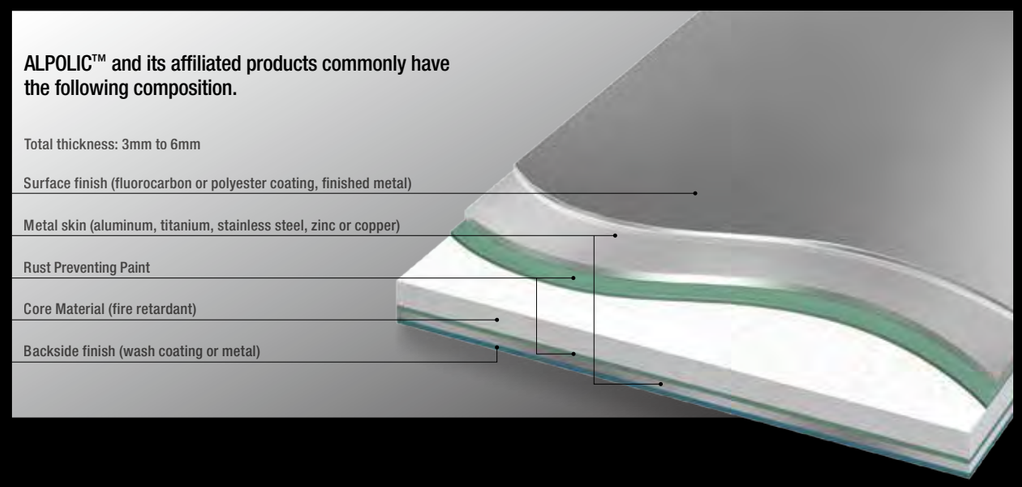
ALPOLIC™ is the world's leading metal composite material brand for the worldwide construction industry. It is not only a reasonable alternative to solid aluminum sheets, but also a material distinguished by its unique features. Its light weight, high rigidity, excellent flatness and long-lasting coating qualities are just what the construction industry has been looking for.


World Trade Center / Bahrain


EYE Filmmuseum / The Netherlands


Busan Bexco Auditorium / Korea

Composition of ALPOLIC™



Feature of ALPOLIC™

FLATNESS:

Excellent flatness derived from the continuous laminating process

COLOR UNIFORMITY:

The coil coating process ensures complete color consistency

RIGIDITY:

ALPOLIC™ is rigid and lightweight

FIRE SAFETY:

ALPOLIC™ NC / A1 has a non-combustible core, ALPOLIC™ A2 has limited combustible core and ALPOLIC™/fr has fire retardant core.

WORKABILITY:

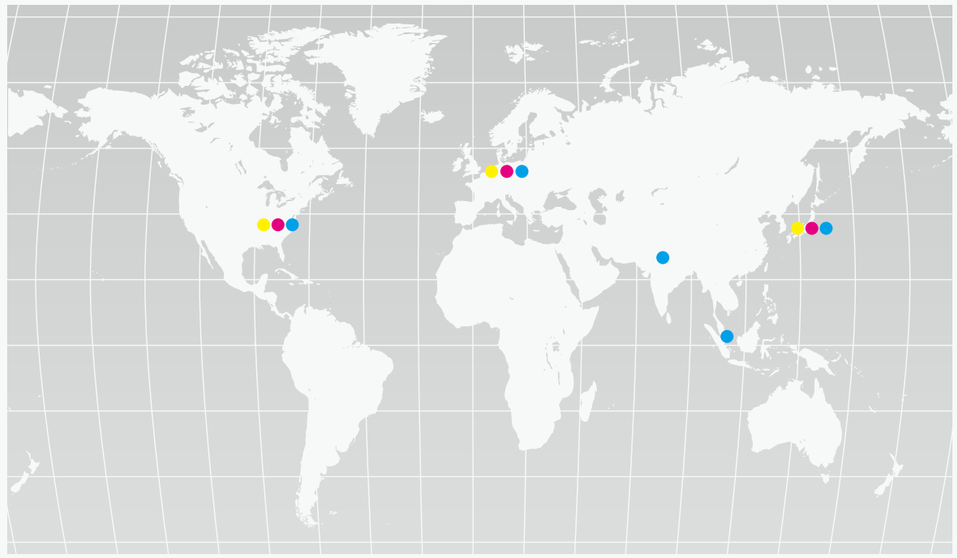
Easy to process with ordinary fabrication machines and tools

ECOLOGY:

Recyclable and environmentally friendly

Production

ALPOLIC™ is produced in Japan, the United States, Germany. In our production plants, we collect both aluminum, other metals and the core material for recycling by means of our original system, to keep an eco-friendly operation. Furthermore, our production plants are ISO 9001/14001 compliant, and also designated as wide district industrial waste disposal facilities. Therefore, we can take back scraps from customers for recycling in compliance with the proper operating standards.



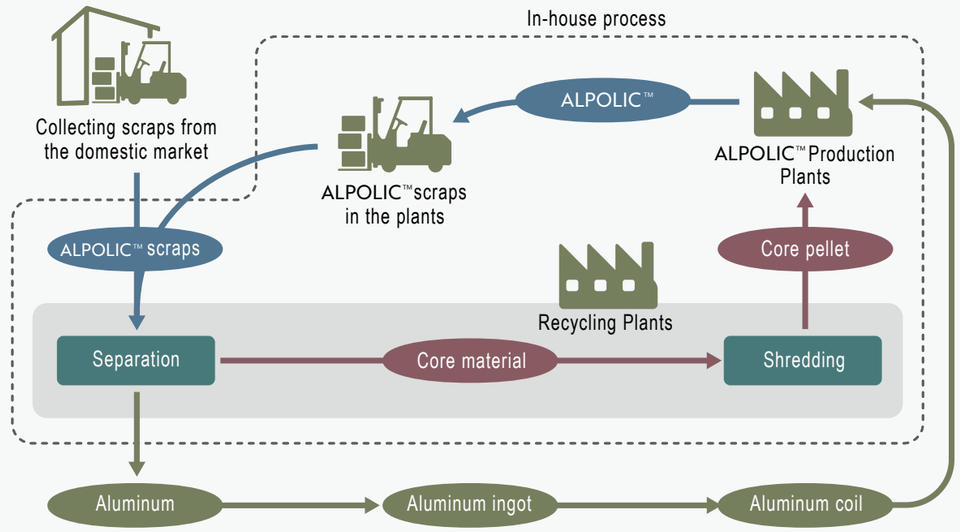
- ALPOLIC™ Production Plants
  : Japan 2, USA 1, Germany 1
- ALPOLIC™ Stock Points
  : Japan, USA, Germany
- ALPOLIC™ Sales or Branch Offices
  : Japan, Singapore, USA, Germany, India


ALPOLIC™ UEDA Plant, Japan


ALPOLIC™ WIESBADEN Plant, Germany


ALPOLIC™ VIRGINIA Plant, USA

Recycling process



Product lineup

ALPOLIC™ NC/A1

| P07

Non-combustible core ACM in compliance with Euroclass A1

Defence Housing Australia / Australia

ALPOLIC™ A2

| P09

Superior fire-retardant ACM in compliance with Euroclass A2

Istanbul Marriot Hotel Sisli / Turkey

ALPOLIC™/fr

| P11

Fire-retardant ACM for external Cladding panel / Meets fire-safety requirements without sacrificing the original features of ALPOLIC™.

Marina Bay Sands Resort / Singapore

ALPOLIC™/fr TCM

Titanium Composite Material / High corrosion resistance

P15

ALPOLIC™/fr SCM

Stainless Steel Composite Material / High rust resistance

P17

ALPOLIC™/fr CCM

Copper Composite Material / For richness and depth to any building's facade

P19

ALPOLIC™/fr ZCM

Zinc Composite Material / For elaborate designs

P20

ALPOLIC™/fr LT

Perfect for interior applications with a mineral-filled fire-retardant core

P23

ALPOLIC™/fr RF

Second generation mirror finish ALPOLIC™

P24

Nan Tien Institute / Australia

Telstra Telephone Exchange Penrith / Australia

Lennox Head Cultural and Community Centre / Australia

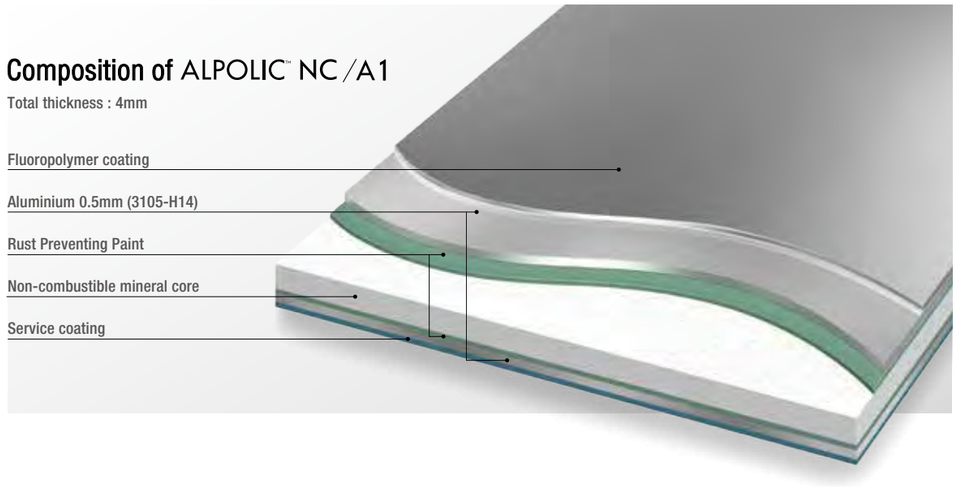
ALPOLIC™ NC/A1

ALPOLIC™ NC / A1 is a fire safe aluminium composite material with a non-combustible mineral core that contains zero polyethylene.
ALPOLIC™ NC / A1 can be used as an exterior or interior cladding and roof coverings in both new buildings and re-clad applications wherever a non-combustible material is required.

95% ALPOLIC™ NC / A1 consists of approx. 95% of non-combustible ingredients within the core material.

Composition of ALPOLIC™ NC/A1

Total thickness : 4mm



DIMENSION (STANDARD)

Thickness (tolerance ±0.2mm)	Standard Width (tolerance; ±2.0mm)	(Bow tolerance)
4mm	1270, 1575mm	±0.5% of the length and/or width
Skin thickness	**Length (tolerance; ±4.0mm)**	**(Diagonal difference)**
0.5mm	1800 - 7200mm	Max 5.0mm

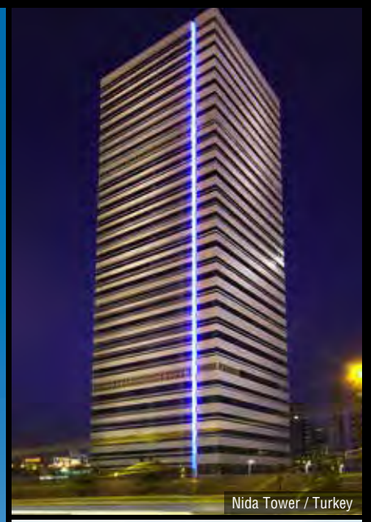
FIRE PERFORMANCE OF ACM SERIES

Core Material	ALPOLIC™ PE	ALPOLIC™/fr	ALPOLIC™A2	ALPOLIC™NC/A1
Approx. portion of combustible ingredients within the core material	100%	<30%	<10%	**<5%**
				
Heat Potential of the core material	> 45 MJ/kg	< 13 MJ/kg	< 3 MJ/kg	**< 2 MJ/kg**
Reference Fire Classification	Euroclass C - D (EN 13501-01:2007)	Euroclass B (EN 13501-01:2007)	Euroclass A2 (EN 13501-01:2007)	**Euroclass A1 (EN 13501-01:2007)**

CHARACTERISTICS (FOR STANDARD DIMENSION)

		Method	Unit	ALPOLIC™NC/A1
Physical properties	Thickness	–	–	**4mmt**
	Specific gravity	–	–	**2.15**
	Weight	–	kg/m^2	**8.6**
	Thermal expansion	ASTM D696	$\times 10^{-6}/°C$	**20.6**
	Thermal conductivity	Calculated value	W/m-K	**0.4**
	Deflection temperature	ISO 75-2	°C	**115**
Mechanical properties of composite material	Tensile strength	ASTM E8	MPa, N/mm^2	**48.2**
	0.2% proof stress	ASTM E8	MPa, N/mm^2	**46.5**
	Elongation	ASTM E8	%	**2.7**
	Flexural elasticity, E	ASTM D7250	GPa, kN/mm^2	**45.6**
Sound Transmission Loss		ASTM E413	STC	**27**
Metal thickness with equivalent rigidity		Calculated value		**Aluminium 3.3mm**

Bursa Hilton & Hampton / Turkey


Nida Tower / Turkey


Istanbul Marriot Hotel Sisli / Turkey

ALPOLIC™ A2

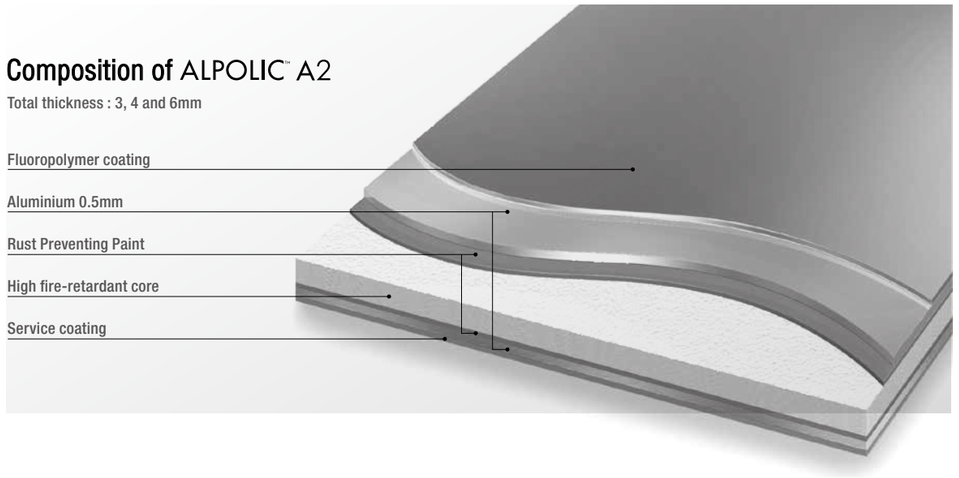
ALPOLIC™ A2 is an aluminum composite material (ACM) with a high fire-retardant core, used as exterior and interior claddings and roof coverings in new building and retrofit applications. ALPOLIC™ A2 has been classified as having a superior fire-safety grade to various other types of ACM.

90%

ALPOLIC™ A2 consists of approx. 90% of non-combustible ingredients within the core material.

Composition of ALPOLIC™ A2

Total thickness : 3, 4 and 6mm



DIMENSION (STANDARD)

Thickness (tolerance ±0.2mm)	Standard Width (tolerance; ±2.0mm)	(Bow tolerance)
4mm	1245, 1270, 1550 and 1575mm	±0.5% of the length and/or width
Skin thickness	**Length (tolerance; ±4.0mm)**	**(Diagonal difference)**
0.5mm	1800 - 7200mm	Max 5.0mm

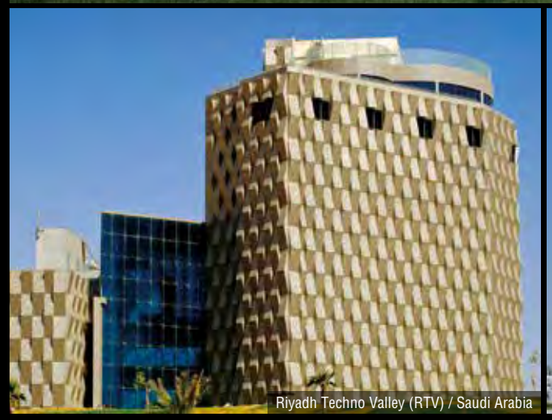
FIRE PERFORMANCE OF ACM SERIES

Core Material	ALPOLIC™ PE	ALPOLIC™/fr	ALPOLIC™A2	ALPOLIC™NC/A1
Approx. portion of combustible ingredients within the core material	100%	<30%	**<10%**	<5%
				
Heat Potential of the core material	> 45 MJ/kg	< 13 MJ/kg	**< 3 MJ/kg**	< 2 MJ/kg
Reference Fire Classification	Euroclass C - D (EN 13501-01:2007)	Euroclass B (EN 13501-01:2007)	**Euroclass A2 (EN 13501-01:2007)**	Euroclass A1 (EN 13501-01:2007)

CHARACTERISTICS (FOR STANDARD DIMENSION)

		Method	Unit	ALPOLIC™A2
Physical properties	Thickness	–	–	**4mmt**
	Specific gravity	–	–	**2.03**
	Weight	–	kg/m^2	**8.1**
	Thermal expansion	ASTM D696	$\times 10^{-6}/°C$	**19**
	Thermal conductivity	Calculated value	W/m-K	**0.45**
	Deflection temperature	ISO 75-2	°C	**110**
Mechanical properties of composite material	Tensile strength	ASTM E8	$MPa, N/mm^2$	**43**
	0.2% proof stress	ASTM E8	$MPa, N/mm^2$	**41**
	Elongation	ASTM E8	%	**3.8**
	Flexural elasticity, E	ASTM C393	$GPa, kN/mm^2$	**38.5**
Sound Transmission Loss		ASTM E413	STC	**27**
Metal thickness with equivalent rigidity		Calculated value		**Aluminium 3.3mm**

Busan National Maritime Museum / Korea



Riyadh Techno Valley (RTV) / Saudi Arabia

Dincalis Mall Project / Turkmenistan

ALPOLIC™/fr

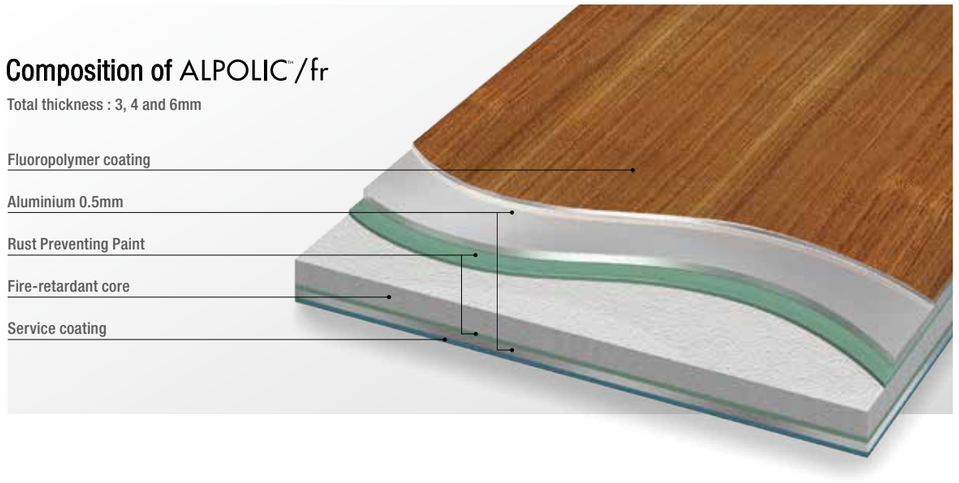
ALPOLIC™/fr is a fire-retardant ACM composed of aluminum skins and a mineral-filled fire-retardant core. It passes most countries' fire-safety codes for exteriors and interiors. Compared with solid aluminum panels, ALPOLIC™/fr is lightweight, rigid and flat. The surface finish is a coating of fluorocarbon paint. Die Coater that we use in the continuous coil coating line ensures uniform color and smooth coating. Coating variations includes the Patterns（Stone, Timber, Metal, and Abstract）, produced with a unique image-transfer coating.

70%

ALPOLIC™/fr consists of approx. 70% of non-combustible ingredients within the core material.

Composition of ALPOLIC™/fr

Total thickness : 3, 4 and 6mm



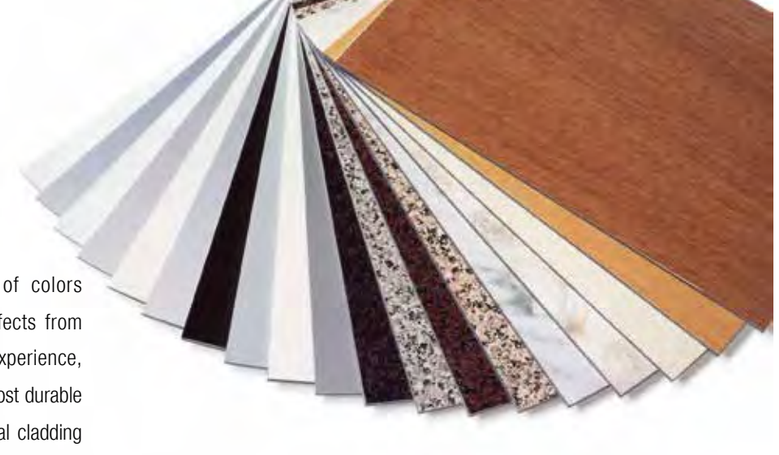
DIMENSION (STANDARD)

Thickness (tolerance ±0.2mm)	Standard Width (tolerance; ±2.0mm)	(Bow tolerance)
4mm	965, 1270, 1575mm	±0.5% of the length and/or width
Skin thickness	**Length (tolerance; ±4.0mm)**	**(Diagonal difference)**
0.5mm	<7200mm	Max 5.0mm

CHARACTERISTICS (FOR STANDARD DIMENSION)

		Method	Unit	ALPOLIC™/fr
Physical properties	Thickness	–	–	**4mmt**
	Specific gravity	–	–	**1.90**
	Weight	–	kg/m^2	**7.6**
	Thermal expansion	ASTM D696	$\times 10^{-6}/°C$	**24**
	Thermal conductivity	Calculated value	W/m-K	**0.45**
	Deflection temperature	ISO 75-2	°C	**116**
Mechanical properties of composite material	Tensile strength	ASTM E8	$MPa, N/mm^2$	**49**
	0.2% proof stress	ASTM E8	$MPa, N/mm^2$	**44**
	Elongation	ASTM E8	%	**5**
	Flexural elasticity, E	ASTM C393	$GPa, kN/mm^2$	**39.8**
Sound Transmission Loss		ASTM E413	STC	**27**
Metal thickness with equivalent rigidity		Calculated value		**Aluminium 3.3mm**

Paint System



ALPOLIC™ paint coating offers a variety of colors and patterns, and a wide range of gloss effects from 5% to 80%. With its 50+ years of experience, ALPOLIC™ paint coating is recognized as the most durable and reliable paint coating system in the external cladding field.

[Principle]

ALPOLIC™ for external applications is regulary coated on its exposed surface side with fiest-class fluorocarbon paint system. The standard coating warranty period is conditionally 20 years. In addition to the regular ISO quality management system, ALPOLIC™quality control assures the deepest satisfaction to the customer seeking high-end products. We have confidence not only in the high grade of the paint itself, but also in color consistency throughout the production lots. ALPOLIC™ paint coating is usually evaluated with chamber tests such as accelerated weathering, salt spray, etc. It is also checked regularly by means of actual decades-long exposure in harsh coastal climates.

Natural exposure test in Japan & South Florida, USA

[Prêt-à-Porter]

Our standard and semi-standard colors covers most popular finishes used in many buildings over the world in recent decades. ALPOLIC™ standard colors have represented part of tradition in modern architectural buildings. ALPOLIC™ paint coating has proved its long- lasting durability and overwhelming presence throughout the history of external cladding applications.

[Haute Couture]

ALPOLIC™ paint coating provides unlimited styles to the building designer. Tailor-made colors are our outstanding technology that highlight an architect's personality. We are ready to provide maximum service upon choosing among the widest range of colors, gloss, and patterns available and withstands to external cladding.

Fire Performance

The core material between the metal skins plays main role of the fire performance of composite materials. ALPOLIC™/fr, ALPOLIC™ NC / A1 and ALPOLIC™ A2 are exclusively designed in order to meet most of all the fire regulations over the world without any limitations to the building cladding applications. Without losing original properties of ALPOLIC™, such as flatness, strength, durability, and easy processing etc, Mitsubishi Chemical Infratec pursues total balance of the panel at the same time it achieves the best performance on the fire safety.

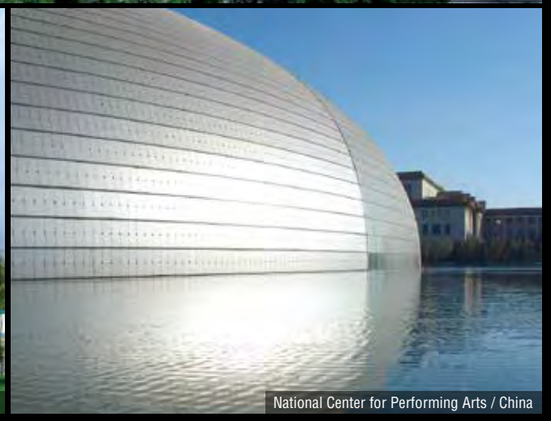
	ALPOLIC™/fr	ALPOLIC™ A2	ALPOLIC™ NC / A1
Thickness	4mmt	4mmt	4mmt
Approx. portion of combustible ingredients within the core material	< 30%	< 10%	< 5%
Heat Potential of the core material	< 13 MJ/kg	< 3 MJ/kg	< 2 MJ/kg
Europe	EN 13501-1 (B-s1-d0)	EN 13501-1 (A2-s1-d0)	EN 13501-1 (A1)
USA	ASTM E84 (Class 1/A) ASTM E108 ASTM E108 Modified UBC 26-9 & NFPA 285 ASTM E119 UBC 26-3 (Passed)		
Canada	CAN/ULC-S 134-92 (Passed)		
Russia	GOST (G1,B1,T1,D1,K0)	GOST (G1,B1,T1,D1,K0)	
Japan	Passed. Certified as non-combustible material		
UK Australia			BS476-4 (Passed) AS1530.1 (Passed)

	Polyethylene	Aluminium Hydroxide
Chemical Reaction	$(-CH_2-) + O_2 \rightarrow CO_2 + H_2O$	$2Al(OH)_3 \rightarrow Al_2O_3 + 3H_2O$
Status	Heat Generation	Heat Absorption

	Melting Point
Titanium	1668°C
Stainless Steel	1424°C
Copper	1084°C
Aluminium	660°C
Zinc	420°C


Taipei Arena / Taiwan


Hangzhou Grand Theater / China


National Center for Performing Arts / China

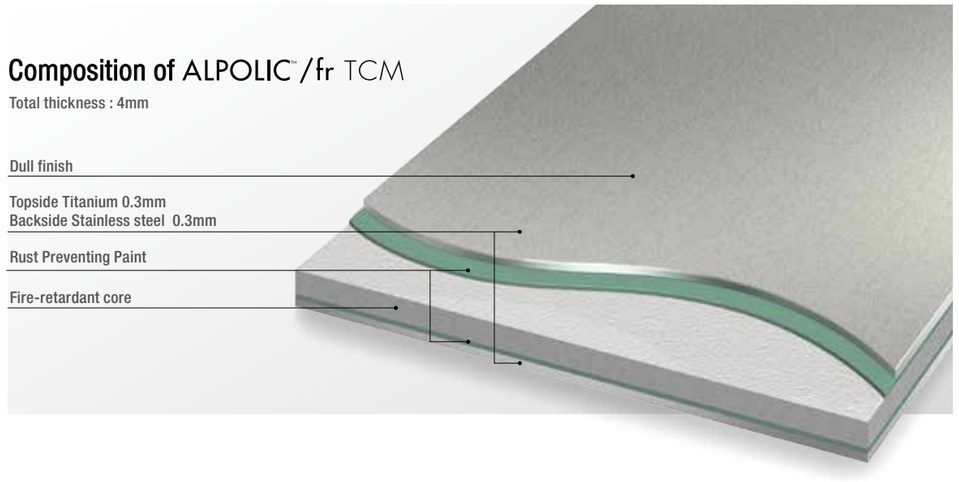
ALPOLIC™/fr TCM

ALPOLIC™/fr TCM is a titanium composite panel composed of a 0.3 mm thick titanium sheet on the topside, a mineral-filled fire-retardant core and 0.3 mm thickness stainless steel sheet on the backside. Titanium metal quickly forms a stable oxide film (called “passivated film”) at room temperature and is known for its unparalleled corrosion resistance. ALPOLIC™/fr TCM is suited to the external claddings and roof coverings of buildings located in highly corrosive environments.

99.5% Titanium, the top surface metal skin of TCM, contains approx. 99.5% of pure-titanium.

Composition of ALPOLIC™/fr TCM

Total thickness : 4mm



DIMENSION (STANDARD)

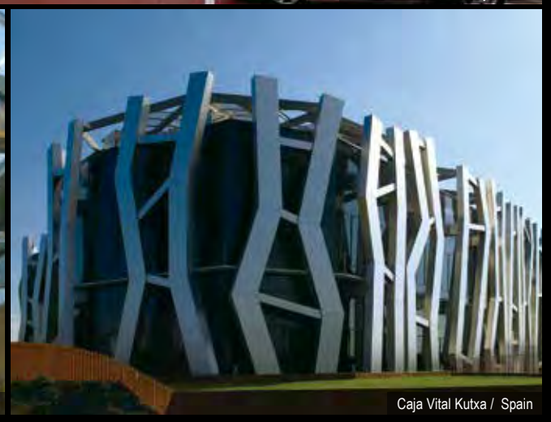
Thickness (tolerance ±0.2mm)	Standard Width (tolerance; ±2.0mm)	(Bow tolerance)
4mm	1000(1219mm is available upon request)	±0.5% of the length and/or width
Skin thickness	**Length (tolerance; ±4.0mm)**	**(Diagonal difference)**
0.3mm	<5000mm	Max 5.0mm

CHARACTERISTICS (FOR STANDARD DIMENSION)

		Method	Unit	ALPOLIC™/fr TCM
Physical properties	Thickness	–	–	**4mmt**
	Specific gravity	–	–	**2.33**
	Weight	–	kg/m^2	**9.3**
	Thermal expansion	ASTM D696	$\times 10^{-6}/°C$	**10.4**
	Thermal conductivity	Calculated value	W/m-K	**0.4**
	Deflection temperature	ISO 75-2	°C	**112**
Mechanical properties of composite material	Tensile strength	ASTM E8	MPa, N/mm^2	**69**
	0.2% proof stress	ASTM E8	MPa, N/mm^2	**60**
	Elongation	ASTM E8	%	**11.1**
	Flexural elasticity, E	ASTM C393	GPa, kN/mm^2	**49.0**
Sound Transmission Loss		ASTM E413	STC	**25**
Metal thickness with equivalent rigidity		Calculated value		**Titanium 3.1mm**

Jisan & Beommul Library / Korea

Sutluce Halic convention center / Turkey



Caja Vital Kutxa / Spain

ALPOLIC™/fr SCM

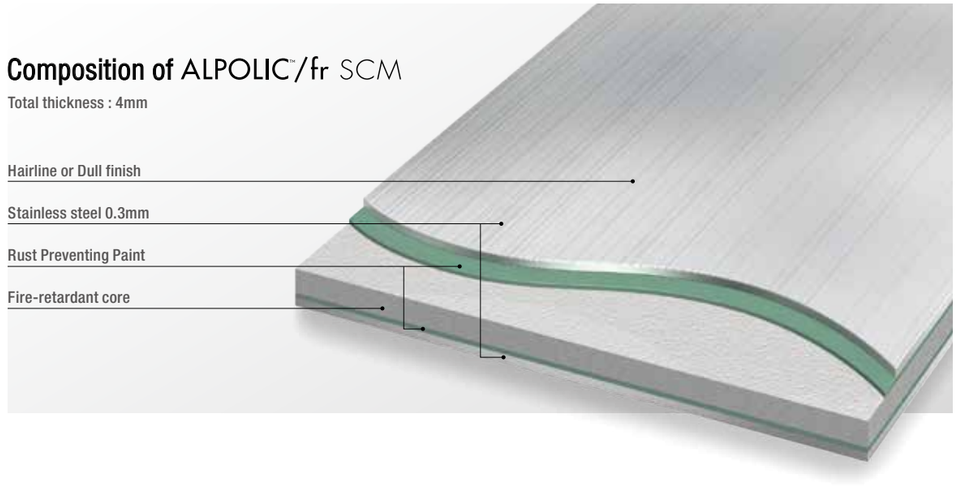
ALPOLIC™/fr SCM is a stainless steel composite panel composed of a mineral-filled fire-retardant core and two sheets of 0.3 mm thick stainless steel. Both sides of the stainless steel are NSSC220M, a highly rust-resistant ferritic stainless steel, which has an outstanding rust resistance comparable to stainless steel 316. ALPOLIC™/fr SCM is suitable for the external claddings and roof coverings of buildings.

46%

4 mm thick ALPOLIC™/fr SCM is equivalent to 2.9 mm thick solid stainless steel sheet in terms of bending rigidity but SCM is lighter, about 46% of the solid stainless steel weight.

Composition of ALPOLIC™/fr SCM

Total thickness : 4mm



DIMENSION (STANDARD)

Thickness (tolerance ±0.2mm)	Standard Width (tolerance; ±2.0mm)	(Bow tolerance)
4mm	1000(1219mm is available upon request)	±0.5% of the length and/or width
Skin thickness	**Length (tolerance; ±4.0mm)**	**(Diagonal difference)**
0.3mm	<5000mm	Max 5.0mm

CHARACTERISTICS (FOR STANDARD DIMENSION)

		Method	Unit	ALPOLIC™/fr SCM
Physical properties	Thickness	–	–	**4mmt**
	Specific gravity	–	–	**2.55**
	Weight	–	kg/m^2	**10.2**
	Thermal expansion	ASTM D696	$\times 10^{-6}/°C$	**12.3**
	Thermal conductivity	Calculated value	W/m-K	**0.4**
	Deflection temperature	ISO 75-2	°C	**117**
Mechanical properties of composite material	Tensile strength	ASTM E8	MPa, N/mm^2	**86**
	0.2% proof stress	ASTM E8	MPa, N/mm^2	**69**
	Elongation	ASTM E8	%	**18.5**
	Flexural elasticity, E	ASTM C393	GPa, kN/mm^2	**78.3**
Sound Transmission Loss		ASTM E413	STC	**28**
Metal thickness with equivalent rigidity		Calculated value		**Stainless steel 2.9mm**

ALPOLIC™/fr CCM

ALPOLIC™/fr CCM is a copper composite material composed of a copper sheet on the topside, a mineral-filled fire-retardant core and a copper sheet on the backside. Like solid copper, ALPOLIC™/fr CCM is perfect for architectural wall cladding applications and accent trim on buildings.

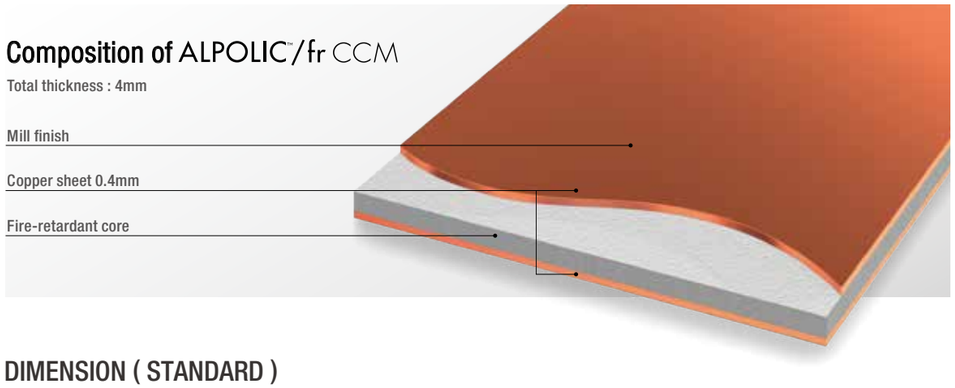
Ceridian Corporate Building / U.S.A

Features

The natural copper surface's ever-changing finish constantly evolves, adding richness and depth to any building's facade. ALPOLIC™/fr CCM offers the rigidity of heavy gauge sheet metal in a lightweight copper-faced composite material. CCM also features such attributes as superior flatness, vibration dampening, durability and ease of maintenance

Composition of ALPOLIC™/fr CCM

Total thickness : 4mm



DIMENSION (STANDARD)

Thickness (tolerance ±0.2mm)	Standard Width (tolerance; ±2.0mm)	(Bow tolerance)
4mm	965mm	±0.5% of the length and/or width
Skin thickness	**Length (tolerance; ±4.0mm)**	**(Diagonal difference)**
0.4mm	3708mm	Max 5.0mm

CHARACTERISTICS (FOR STANDARD DIMENSION)

		Method	Unit	ALPOLIC™/fr CCM
Physical properties	Thickness	–	–	**4mmt**
	Specific gravity	–	–	**3.13**
	Weight	–	kg/m²	**12.5**
	Thermal expansion	ASTM D696	×10⁻⁶/°C	**17**
	Thermal conductivity	Calculated value	W/m-K	**0.42**
	Deflection temperature	ISO 75-2	°C	**140**

ALPOLIC™/fr ZCM

ALPOLIC™/fr ZCM is a zinc composite material composed of a chemically-weathered zinc sheet on the topside, a mineral-filled fire-retardant core and a zinc sheet on the backside. ZCM is suited to exterior applications such as soffits, awnings, parapets, rain screens, external claddings and roofs, especially when conventional building materials are insufficient.

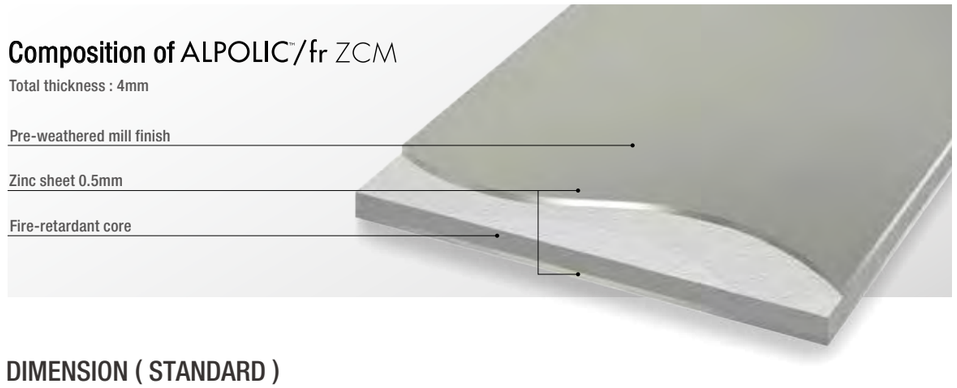
University of Western Australia / Australia

Features

Zinc alloy skin: The topside skin is a real zinc alloy weathered with a chemical conversion process, which later takes on a distinctive gray appearance through natural weathering.
Long life: Protected by the surface layers, zinc alloy has a long life. The annual erosion rate is normally 1 to 7 microns (3 microns on average), which indicates that 100 micron (0.1 mm) thick zinc takes as long as 35 years to erode.

Composition of ALPOLIC™/fr ZCM

Total thickness : 4mm



DIMENSION (STANDARD)

Thickness (tolerance ±0.2mm)	Standard Width (tolerance; ±2.0mm)	(Bow tolerance)
4mm	965mm	±0.5% of the length and/or width
Skin thickness	**Length (tolerance; ±4.0mm)**	**(Diagonal difference)**
0.5mm	3708mm	Max 5.0mm

CHARACTERISTICS (FOR STANDARD DIMENSION)

		Method	Unit	ALPOLIC™/fr ZCM
Physical properties	Thickness	–	–	**4mmt**
	Specific gravity	–	–	**3.13**
	Weight	–	kg/m²	**12.5**
	Thermal expansion	ASTM D696	×10⁻⁶/°C	**28(P) / 20(T)**
	Thermal conductivity	Calculated value	W/m-K	**0.45**
	Deflection temperature	ISO 75-2	°C	**115**

(P): parallel to the rolling direction (T): transverse to the rolling direction

Example of fixing methods

We are introducing typical examples of fixing methods below.
Refer to the ALPOLIC™ Technical Manual, “Section 3 Fabrication & Installation” for the details.

[External wall cladding - wet sealant joint]

This installation system, with tray type (rout and return) panels and sealing joints, is one of the most common methods and it is available for a wide range of new buildings and renovation projects. After fixing ALPOLIC™/fr panels on the substructure, we apply a suitable sealing material to the joints in order to ensure water-tightness.

[External wall cladding - hanging method]

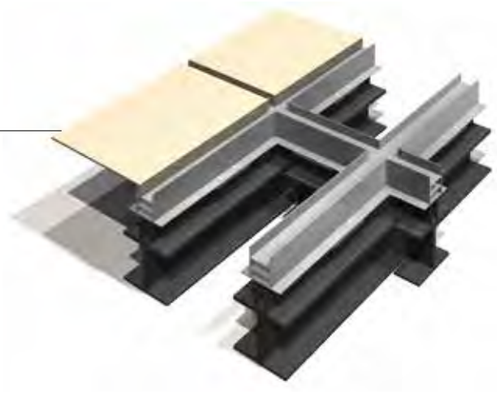
The hanging system is also one of the most common fixing methods. It simplifies the installation work at the construction site and hence we can shorten the installation period. It is easy to loosen the movement due to thermal expansion/contraction with this method, because panels are not tightly fastened to the sub-frame but are simply suspended.

[Curtain wall]

A conventional unitized curtain wall style. ALPOLIC™ is installed on the spandrel part on a curtain wall panel and fixed on aluminum frames by structural silicone sealant as an example.

[Roof Covering]

ALPOLIC™/fr has been used for roof covering in prestigious projects such as airports and stadiums. In roof applications, we install a water gutter or waterproof sheets behind ALPOLIC™/fr panels so that leaked water can drain outside.



[External wall cladding - hanging method 2]

The other hanging method is suspended by solid aluminum plates with a slot which is fixed on the returned panel edges. It enables to withstand medium to high wind load cases.

[Back panel of glass curtain wall]

Glass curtain walls sometimes need an opaque spandrel panel (back panel) behind glass for aesthetic and energy-saving purpose. The spandrel back panels behind the glass must be very durable especially to UV exposure, because it is hard to replace them after the building is completed. ALPOLIC™/fr is the perfect material for such applications.

ALPOLIC™/fr LT

ALPOLIC™/fr LT is exclusively designed for interior applications, such as partitions, interior walls, false ceilings and etc. It is a fire-retardant and safe material, meeting the requirements of UBC 26-3 & ISO 9705 (Interior Room Corner Test) which is widely acceptable fire rating in most countries. The main ingredient of the core material prevents the proliferation of flame and restricts the development of smoke which is detrimental to evacuation activities.

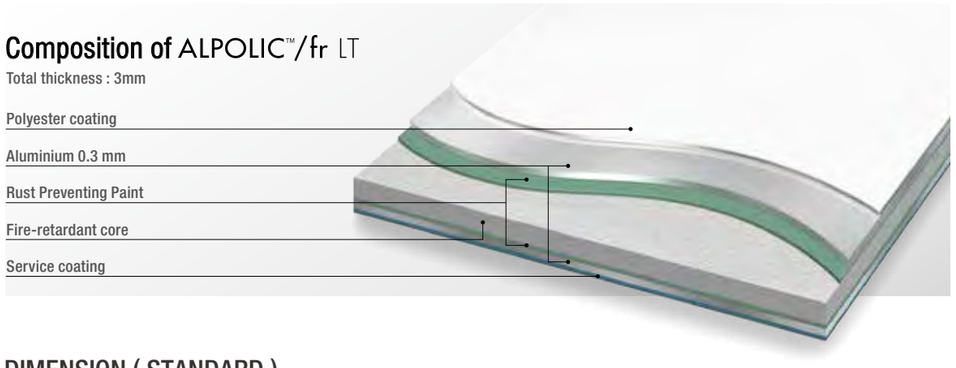
The Gallery Bangkok / Thailand

Features

Easy installation: It can be easily installed on a rigid substrate using a soft set adhesive and or double sided tape.
Simple processing: It is easily fabricated and formed. Cutting and drilling can be done on site
Fire performance: In Japan it has been certified as a non-combustible material (Certificate No. NM-3415)

Composition of ALPOLIC™/fr LT

Total thickness : 3mm



DIMENSION (STANDARD)

Thickness (tolerance ±0.2mm)	Standard Width (tolerance; ±2.0mm)	(Bow tolerance)
3mm	1220mm (Hairline 914mm)	±0.5% of the length and/or width
Skin thickness	**Length (tolerance; ±4.0mm)**	**(Diagonal difference)**
0.3mm	2440mm (Hairline 2438mm)	Max 5.0mm

CHARACTERISTICS (FOR STANDARD DIMENSION)

		Method	Unit	ALPOLIC™/fr LT
Physical properties	Thickness	–	–	**3mmt**
	Specific gravity	–	–	**1.83**
	Weight	–	kg/m²	**5.5**
	Thermal expansion	ASTM D696	×10⁻⁶/°C	**24**
	Thermal conductivity	Calculated value	W/m-K	**0.3**
	Deflection temperature	ISO 75-2	°C	**110**

ALPOLIC™/fr RF

ALPOLIC™/fr RF is a mirror-like reflective finish aluminum composite material (ACM) with a mineral-filled fire-retardant core, used as a ceiling or interior wall applications.

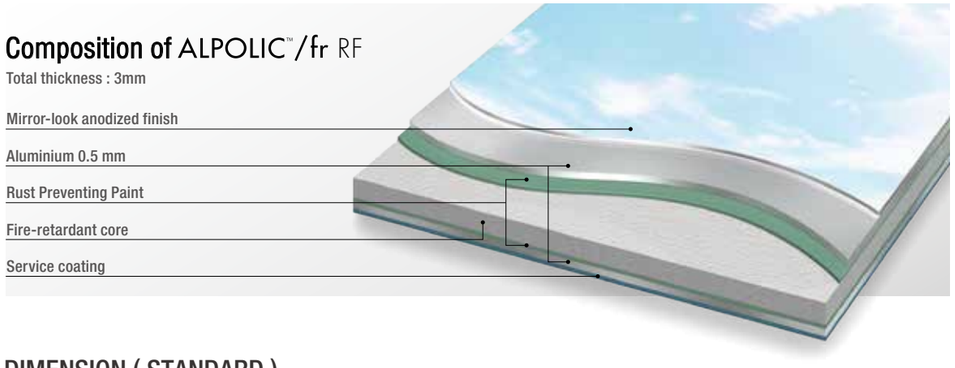
Gran Haneda / Japan

Features

Shatter-proof and safety: Unlike glass, aluminum composite material (ACM) will not shatter or break.
Easy installation: It can be easily installed on a rigid substrate using a soft set adhesive and or double sided tape.
Simple processing: It is easily fabricated and formed. Cutting and drilling can be done on site
Fire performance: In Japan it has been certified as a non-combustible material (Certificate No. NM-3415)

Composition of ALPOLIC™/fr RF

Total thickness : 3mm



DIMENSION (STANDARD)

Thickness (tolerance ±0.2mm)	Standard Width (tolerance; ±2.0mm)	(Bow tolerance)
3mm	1220mm	±0.5% of the length and/or width
Skin thickness	**Length (tolerance; ±4.0mm)**	**(Diagonal difference)**
0.5mm	2440mm	Max 5.0mm

CHARACTERISTICS (FOR STANDARD DIMENSION)

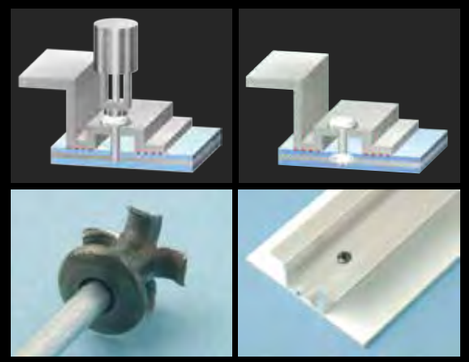
		Method	Unit	ALPOLIC™/fr RF
Physical properties	Thickness	–	–	**3mmt**
	Specific gravity	–	–	**2.00**
	Weight	–	kg/m²	**6.0**
	Thermal expansion	ASTM D696	×10⁻⁶/°C	**25**
	Reflectance	JIS D5705		**83%**
	Thermal conductivity	Calculated value	W/m-K	**0.5**

Hidden Rivet Ceiling System +ALPOLIC™

Mitsubishi Chemical Infratec provides ALPOLIC™ sheets with a unique Hidden rivet ceiling System featuring superior flatness and consistent stretch from internal ceilings to external eaves through building entrances or walls.
Fixing engineering is supported by Mitsubishi Chemical Infratec upon request to match the application and the design.

Yokohama Immigration Bureau / Japan

Marunouchi Trust Tower / Japan



Nagoya Lucent Tower / Japan

Keihan Railway / Nakanoshima station / Japan

Keikyu Line / Haneda station / Japan

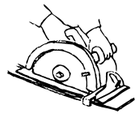
Palace Building / Japan

Processing method

ALPOLIC™/fr, ALPOLIC™ NC / A1 and ALPOLIC™ A2 (hereafter, ALPOLIC™) can be processed with regular machines and tools for aluminum and wood. We can cut ALPOLIC™ panels with a circular saw, fold them after grooving and curve them with a 3-roll bender. In order to join aluminum extrusions on ALPOLIC™ panels, we can choose a suitable joining method from several alternatives.

CUTTING

ALPOLIC™ can be cut with various types of circular saws such as table saws, hand circular saws and panel saws. Also, we can use a square shear for cutting, which permits an efficient sizing work. To cut ALPOLIC™ in curving lines, we use hand routers or trimmers.

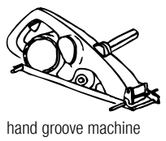


hand circular saw

hand trimmer

U-GROOVING

ALPOLIC™ can be folded after U-grooving in the backside. Two types of machines are available for U-grooving. One is a circular cutter type and the other is a router type. The former includes hand grooving machines and panel saws, and the latter includes hand routers and CNC routers.
CNC routers are suitable for grooving ALPOLIC™ A1 and ALPOLIC™ A2.



hand groove machine

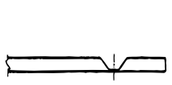
groove cutter

hand router

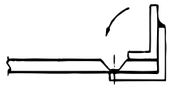
router bit

FOLDING

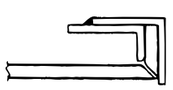
After U-grooving, ALPOLIC™can be folded with a folding jig.



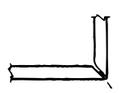
a. U-groove



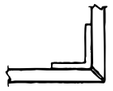
b. use a folding jig



c. fold



d. check the roundness (2-3mmR)

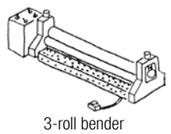


e. support if necessary

BENDING WITH PRESSBRAKE AND 3-ROLLBENDER

ALPOLIC™ can be bent with a press brake. The bend-ability depends on the thickness and the core material. ALPOLIC™/fr has a larger bendable limit than ALPOLIC™ has. We can also use manual or electric-drive 3-roll benders for curving ALPOLIC™.

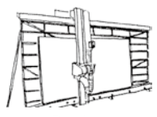
Press brake



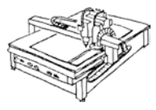
3-roll bender

AUTOMATED MACHINES

In addition to the above conventional machines, we can use automated machines including panel saws and CNC routers for cutting and grooving. These machines enable efficient and precise work, especially suitable for repetition of analogous work.



Panel saw



CNC router

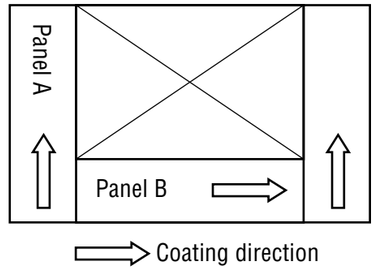
JOINING

We often use rivets, bolts/nuts and tapping screws for joining ALPOLIC™ and other materials like aluminum extrusions. In order to prevent from possible galvanic corrosion in a humid atmosphere, use blind rivets made of aluminum. Use screws and bolts/nuts made of aluminum or stainless steel.

General notes

Coating direction

In Metallic Colors, Sparkling Colors, Prismatic Colors and Patterns (Stone, Timber, Metal, and Abstract), slight color differences will be noticeable if the panels are installed in different directions (like Panel A and B in the diagram). Install panels in the same direction as marked in the protective film. In our Solid Colors, any color difference due to coating direction is negligible.



Protective film

The protective film on ALPOLIC™s mostly consists of two polyethylene layers of white and black. Do not peel off the protective film during fabrication and installation to protect the surface from scratching and soiling. Under normal weather conditions, the protective film will withstand 6 (six)-months of outdoor exposure without losing any of its original peel-off characteristics or causing stains or other damage. However, peel off the protective film as soon as possible after completion.

Gloss increase due to plasticizer

Do not stick, put or apply PVC tapes, polyurethane sealant or modified silicone sealant onto our protective film. The plasticizer contained in these materials can permeate the protective film and cause a gloss change in the coating.

Note:

The above precautions pertain to ALPOLIC™/fr, ALPOLIC™ NC / A1 and ALPOLIC™ A2. The affiliated products including TCM, SCM, ZCM, CCM, ALPOLIC™/fr LT, and ALPOLIC™/fr RF have their respective precautions. Refer to the separate brochure of the respective products for details.

ISO 9001:2015 Certified

The production of ALPOLIC™ is ISO 9001:2015 compliant throughout the design, development, manufacture and sales.

ISO 14001:2015 Certified

ALPOLIC™ are produced in plants that have ISO14001:2015 certificate.