

sustainability



innovation • style • performance

ALPOLIC® & ALPOLIC®/fr
MATERIALS

 MITSUBISHI PLASTICS COMPOSITES AMERICA, INC.
www.alpolic-northamerica.com

ALPOLIC® IS AN ALUMINUM COMPOSITE MATERIAL (ACM) THAT HAS BEEN WIDELY USED FOR BUILDING PROJECTS WORLDWIDE FOR MORE THAN THREE DECADES. IN THE U.S., ALPOLIC® HAS BEEN IN USE SINCE THE EARLY 1980S AND HAS BEEN PRODUCED DOMESTICALLY SINCE 1992. LIGHTWEIGHT AND RIGID WITH A VARIETY OF DURABLE FINISHES, ALPOLIC® IS A MATERIAL OF CHOICE FOR BUILDING CLADDINGS, RETAIL FACADES AND CORPORATE IDENTITY SIGNS. IN ADDITION TO THE ORIGINAL ALPOLIC® ACM, THE CURRENT ALPOLIC PRODUCT LINEUP INCLUDES ALPOLIC®/FR, WITH EXCELLENT FIRE-SAFETY QUALITIES, AND METAL COMPOSITE MATERIALS (MCM) SUCH AS COPPER, STAINLESS STEEL AND TITANIUM.

operation encore

ALPOLIC® is pleased to introduce Operation Encore, a program that emphasizes not just the recycling of our Aluminum Composite Material (ACM) and Metal Composite Material (MCM) but also finds practical and innovative ways to use the materials that in the past would have simply been discarded as scrap. The raw materials used in ALPOLIC® products have been selected to maximize the use of recycled content. Production lines are designed to be extremely energy efficient and to comply with all regulations relating to the environment.

But the responsible handling of recyclable materials is only one side of Operation Encore. We are also exploring relationships with innovative designers and architects who can use surplus ALPOLIC® materials for such socially important needs as urban renewal projects, disaster shelters, and more.

ALPOLIC® production is ISO 9001-2000 certified. Our production is periodically audited by third parties for consecutive qualification.



*Mitsubishi Plastics Composites America, Inc.
The ALPOLIC® production plant is located in Chesapeake, VA.*

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Here are some of the reasons why ALPOLIC® is an environmentally friendly building material.

1. High Panel Strength Using Less Aluminum

ALPOLIC® is often used as an alternative to solid aluminum panels because it achieves equivalent rigidity using only one third to one fourth the amount of aluminum. This principle holds true in ALPOLIC® MCM products composed of copper, stainless steel and titanium. (See Table 1).

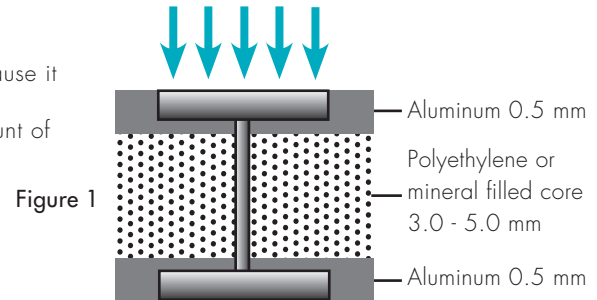


Table 1: Comparison of rigidity between ALPOLIC® products and solid metal sheets

ALPOLIC® Products	Total Metal Thickness in ALPOLIC® Products	Metal Thickness with Equivalent Rigidity	Metal Amount Required for ALPOLIC® Products
ALPOLIC® 3 mm	Aluminum 1.0 mm	Aluminum 2.7 mm	37%
ALPOLIC® 4 mm	Aluminum 1.0 mm	Aluminum 3.3 mm	30%
ALPOLIC® 6 mm	Aluminum 1.0 mm	Aluminum 4.5 mm	22%
ALPOLIC®/fr 4 mm	Aluminum 1.0 mm	Aluminum 3.3 mm	30%
ALPOLIC®/fr 6 mm	Aluminum 1.0 mm	Aluminum 4.5 mm	22%
MCM Copper 4 mm	Copper 0.8 mm	Copper 2.4 mm	33%
MCM Stainless Steel 4 mm	Stainless Steel 0.6 mm	Stainless Steel 2.9 mm	21%
MCM Titanium 4 mm	Titanium 0.6 mm	Titanium 3.1 mm	19%

2. Durable and Innovative Finishes

ALPOLIC® is finished with Lumiflon-based fluoropolymer paint as standard. This paint is known for its durability, featuring long-lasting color and gloss. ALPOLIC® finishes with high solar reflectance, also known as “Cool” colors, are available that increase the energy efficiency of the building and may contribute to LEED Credits ID 1.1 through 1.4. (See next section for more details).

3. Use of Recycled Content as Raw Material

ALPOLIC® products are manufactured using recycled materials. This may contribute to LEED Credits MR 4.1 and 4.2. (See next section for more details).

4. Heat Transmission Effect

When ALPOLIC® products are used for building envelopes, an air pocket is formed between the structural wall and ALPOLIC® panels. This can increase the building’s thermal insulation. (See Table 2).

5. Fire Safety

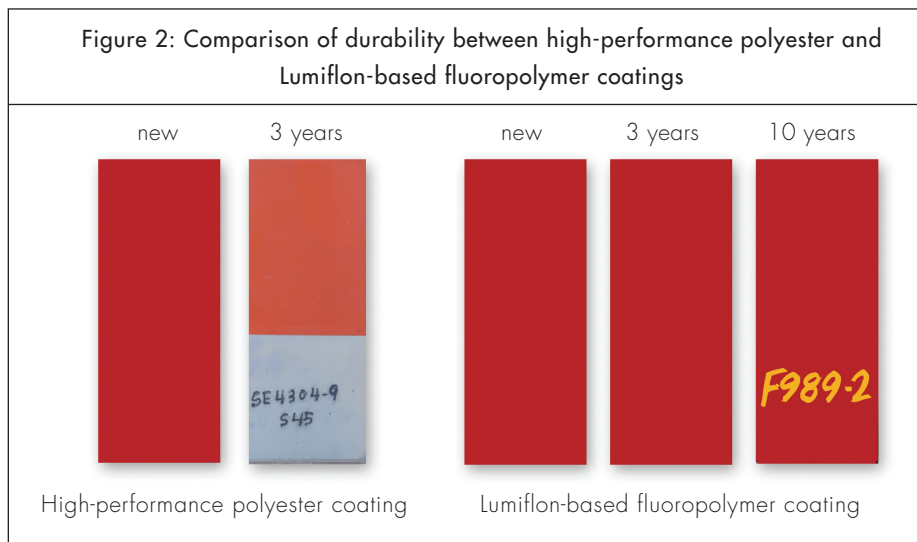
ALPOLIC®/fr is a fire resistive material which can be used for applications where non-combustible construction is required.

We have participated in the review and approval process for the LEED 2.2 standard for new construction.

The use of ALPOLIC® products may contribute to the following credits:

1. Highly Durable or Innovative Finishes: LEED Credits ID 1.1 – 1.4

ALPOLIC® is finished with Lumiflon-based fluoropolymer paint as standard, a paint known for its durability. The long-lasting color and gloss help reduce long-term maintenance costs and material consumption. In addition, the paint is applied using a continuous coil coating process, which gives ALPOLIC® a finish that is consistent as well as durable. In comparison with a competing polyester coating that has reportedly been recently improved, Lumiflon-based fluoropolymer coating still appears to be superior.



In addition, by selecting an appropriate finish, solar reflectance can be improved which can increase the energy efficiency of the building. Colors with solar reflectance Index (SRI) values of 29 or greater meet the requirements established by the Cool Roof Rating Council (CRRRC) for steep roofs. The majority of our architectural standard colors meet this requirement of “Cool”. The SRI values for our standard architectural colors and the LRV (light reflectance value) are noted on the ALPOLIC® color chart to assist in making an informed decision. For these reasons, ALPOLIC® will possibly contribute to LEED Credits ID 1.1 – 1.4. (For details, visit www.alpolic-northamerica.com, Support/Downloads/LEED Statement).

2. Recycled Content: LEED Credit MR 4.1 and 4.2

Virgin aluminum requires a large amount of electricity for smelting. However, approximately 70% of virgin aluminum is recovered and reused. This recycled aluminum requires only 5% of the electricity of virgin aluminum. We use aluminum alloy 3105 for ALPOLIC®. This alloy contains high levels of recycled content.



1.



Mitsubishi Plastics Composites America, Inc. is a member of both the U.S. Green Building Council and Canadian Green Building Council and actively supports environmental responsibility. The raw materials used in the ALPOLIC® panel products have been selected to maximize the use of recycled content. The coating and laminating lines are designed to make the most efficient use of energy and to comply with all regulations and codes relating to environmental quality.

1. HUBBELL LIGHTING HEADQUARTERS - GREENVILLE, SC
2. BAHRAIN WORLD TRADE CENTER - BAHRAIN, U. A. E.
3. EDWARD A. DOISY RESEARCH CENTER - ST. LOUIS, MO
4. CHANGI AIRPORT TERMINAL 3 - SINGAPORE*



3.



4.

*Note: ALPOLIC® is used for the reflector panels that automatically adjust to the level of daylight in the building.

While the exact percentage of recycled content can vary from coil to coil, the typical values of 3105 are as follows:

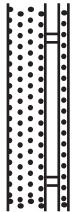
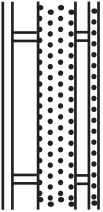
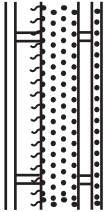
Post-consumer recycled content	12.5%
Pre-consumer recycled content	64.2%
Virgin metal content	23.3%

In addition, ALPOLIC® is extremely rigid, which enables it to achieve the same panel strength as solid aluminum using only one third to one fourth the amount of aluminum. (See Fig.1 and Table 1). For details, visit www.alpolic-northamerica.com, Support/Downloads/LEED Statement.

thermal insulation of alpolic building envelope

When ALPOLIC® is used for a building's envelope, the layer of air created between the ALPOLIC® panels and the structural wall can increase the building's thermal insulation. Table 2 shows some of the calculated results.

Table 2: Heat transmission through external wall

	RC wall only		ALPOLIC® cladding		ALPOLIC® + insulation	
Wall system, wall component and its thickness in mm	out	in	out	in	out	in
	 RC wall (100) Air space (50) Gypsum board (12)		 ALPOLIC® (4) Air space (100) RC wall (100) Air space (50) Gypsum board (12)		 ALPOLIC® (4) Air space (75) Glass wool (25) RC wall (100) Air space (50) Gypsum board (12)	
Calculated U-value	2.5 W/m²•K		2.1 W/m²•K		0.92 W/m²•K	

fire-resistive material

ALPOLIC® is a fire-resistive material that is tested, rated and periodically audited for compliance with fire codes.

ALPOLIC®/fr in particular is specially designed and rated as a material that is ideal for applications where non-combustible materials are required.

ALPOLIC® production is ISO 9001-2000 certified.

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For additional information, samples or a list of ALPOLIC® fabricators, please call 1-800-422-7270 or visit www.alpolic-northamerica.com

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