



ALUMINUM COMPOSITE MATERIAL

PRODUCT BROCHURE





## about Alcotex

### **Alcotex is pleased to offer the premier choice for Aluminum Composite Material (ACM).**

First introduced into the North American market in 2001, Alcotex has been used extensively throughout North America. Both a standard polyethylene (PE) and fire-rated (FR) core material is available with all product testing being performed at fully accredited North American testing facilities.

Our production facility is ISO 9001 certified and we have an uncompromising dedication to quality. Over 30 stock colors to choose from lead the industry and allow the owner or architect a diverse variety when selecting a color for their project. We are also able to produce custom colors to match existing colors or give your project a distinct look.

These are just a few highlights of why Alcotex should be the natural choice for your project and we welcome the opportunity to work with you.

## product features

**ALCOTEX and ALCOTEX/FR Aluminum Composite Material is the premier choice for an exterior cladding that will maximize the beauty of your structure while providing a sustainable product to prolong the life of your building.**

Alcotex ACM is a fusion of extremely flat PVdF coated aluminum enclosing a resin core which offers excellent corrosion resistance, stability against water and is highly scratch resistant. Known for its consistency and rigidity, it has been designed for maximum architectural flexibility while retaining ease of machining and forming using ordinary metal and woodworking tools. Alcotex ACM is also available with a proprietary FR core which is an ideal choice for use in multi-story applications.

Alcotex is produced in a continuous process with a polyvinylidene fluoride (PVdF) coating containing a minimum of 70% Kynar 500®/Hylar 5000® resins which meets or exceeds AAMA 2605 and AAMA 620 performance requirements.





Lumiere Condominiums





# advantages

Lightweight & rigid  
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Superior in flatness  
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Design flexibility  
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Durable surface finishes  
.....

Environmentally friendly  
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Fire safety and no toxic gas  
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Effective vibration / sound dampening control  
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Easy interface with other systems  
.....

Corrosion resistance  
.....

Less joints and clean look  
.....

No special maintenance  
.....



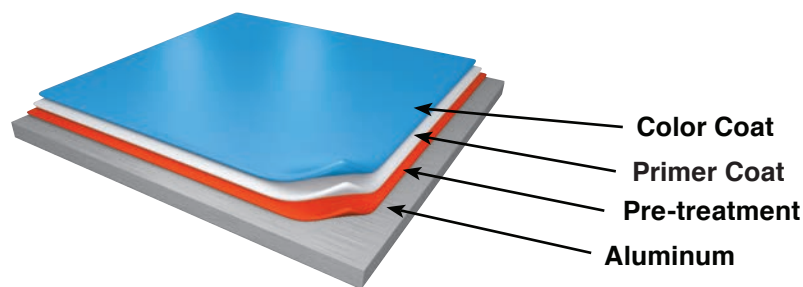
# composition of Alcotex

Alcotex consists of two aluminum sheets sandwiching a solid core of extruded thermoplastic material processed in a continuous process with no glues or adhesives between dissimilar materials. A protective film is applied to the material in production that should be removed after the fabrication and panels have been installed.

**Top:** .5mil/.020" aluminum skin coated with a PVdF roll-coated finish containing a minimum of 70% Kynar 500®/Hylar 5000® resins

**Core:** Anti-toxic low density polyethylene (PE) or mineral based fire rated (FR) core

**Bottom:** .5mil/.020" aluminum skin coated with either a mill or polyester finish



Alcotex finishes are applied in a reverse roller application process and are available in either a 2 or 3 coat finish. The 2 coat finish omits the clear coat required on a 3 coat finish. Both finishes will provide the same excellent performance required for architectural applications.

## Solid & Mica / Pearlescent Colors

These 2 coat finishes will typically consist of a 0.2mil primer coat and a 0.8mil color coat for a nominal dry film thickness of 1mil

## Metallic & Premium Colors

These 3 coat finishes will typically consist of a 0.2mil primer coat, a 0.8mil color coat, and a 0.5mil clear coat for a nominal dry film thickness of 1.5mil

## Custom Colors

Custom Colors are available in either 2 or 3 coat finishes upon request. Please contact us to see how we can help you customize your project.



Porsche of London







# Alcotex engineering properties

## Imperial & Metric Equivalent

Property	Test Method	Units	PE Core	FR Core
<b>Thickness</b>	-	inches mm	0.157 4.0	0.157 4.0
<b>Weight</b>	-	lb/ft <sup>2</sup> Kg/m <sup>2</sup>	1.12 5.47	1.57 7.52
<b>Core Density</b>	-	-	1.36	1.87
<b>Bond Strength</b>	ASTM D1781	in-lb/in Nm/m	53.53 237.7	32.31 143.5
<b>Flatwise Shear - Stress</b>	ASTM C273	lb/in <sup>2</sup> N/mm <sup>2</sup>	1044 7.2	667 4.6
<b>Flatwise Tensile</b>	ASTM C297	lb/in <sup>2</sup> N/mm <sup>2</sup>	1073.28 7.4	522.14 3.6
<b>Coefficient of Expansion</b>	ASTM D696	in/in°F mm/mm°C	1.39 x10 <sup>-5</sup> 2.51 x10 <sup>-5</sup>	1.34 x10 <sup>-5</sup> 2.47 x10 <sup>-5</sup>
<b>Flexural Strength</b>	ASTM C393	lb/in <sup>2</sup> N/mm <sup>2</sup>	227.71 1.57	250.92 1.73
<b>Tensile Strength</b>	ASTM E8	lb/in <sup>2</sup> N/mm <sup>2</sup>	7992 55.1	6672 46.0
<b>Tensile Yield Strength</b>	ASTM E8	lb/in <sup>2</sup> N/mm <sup>2</sup>	6251.1 43.1	5351.9 36.9
<b>Elongation</b>	ASTM E8	%	13.54	5.26
<b>Deflection Temperature</b>	D648	°F °C	398.3° F 203.5° C	437.0° F 225.0° C
<b>Thermal Resistance</b>	ASTM C518	ft <sup>2</sup> hr°F/BTU m <sup>2</sup> K/W	11.2 x10 <sup>-3</sup> 0.071	6.0 x10 <sup>-3</sup> 0.034
<b>Sound Transmission Coefficient</b>	ASTM E90	STC	25	27

# testing data

Alcotex and Alcotex/FR aluminum composite material has been extensively tested at fully accredited testing facilities in North America. These test results meet or exceed the current testing requirements that should be expected to give the customer full confidence in selecting Alcotex for their project.

## Dimensions

**Thickness:** 4mm standard with 3mm & 6mm also available  
**Width:** 40", 49", & 62"  
**Length:** Within 196" is recommended for convenient handling and delivery

## Product Tolerance

**Width:**  $\pm 2.0\text{mm}$   
**Length:**  $+3.0\text{mm}$  (not allowed minus error)  
**Thickness:**  $\pm 0.2\text{mm}$   
**Squareness:** Maximum  $+ 2.0\text{mm}$   
**Bow:** Maximum 0.5%  
**Aluminum Skin:** .5mm/.020"(nominal)

## Fabrication Methods

Alcotex is a versatile product that may be easily fabricated in many different ways including:

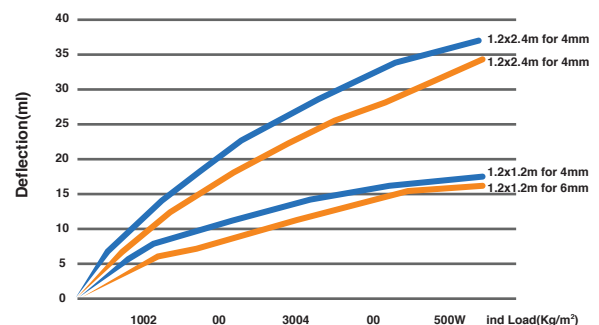
- Cutting
- Grooving
- Bending / Folding
- Curving
- Drilling
- Shearing
- Punching
- Riveting
- Hot Air Welding

## Sound Transmission Loss

With a triple sandwiched composite structure, Alcotex has an excellent physical impact absorbability and sound transmission loss especially when compared to other products. Alcotex ACM is great for effective vibration and sound dampening control.

## Deflection By Wind Load

As well as being both lightweight and rigid, Alcotex is an extremely flat aluminum composite material. Alcotex has a high strength to weight ratio when compared to other exterior veneer products such as aluminum plate, stainless steel or porcelain.





## general properties

Test Procedure	Test Method	Performance
<b>Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus</b>	ASTM C 518	Resistance = 0.071 m <sup>2</sup> · K / Watt Conductivity = 14.085 Watt / m <sup>2</sup> · K
<b>Deflection of Temperature of Plastics under Flexural Load</b>	ASTM D 648	Average Heat Deflection Temperature Under Load at 0.010" deflection is 203.5°C
<b>Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C</b>	ASTM D 696	Average Thermal Expansion/Contraction is 2.51 x 10 <sup>-5</sup> mm/mm°C
<b>Tension Testing of Metallic Materials – Yield Strength</b>	ASTM E8	Average 43.1 N/mm <sup>2</sup>
<b>Tension Testing of Metallic Materials – Tensile Strength</b>	ASTM E8	Average 55.1 N/mm <sup>2</sup>
<b>Tension Testing of Metallic Materials – Elongation</b>	ASTM E8	Average 13.54%
<b>Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions</b>	ASTM E 90	Passed
<b>Classification for Rating Sound Insulation</b>	ASTM E 413	Passed
<b>Shear Properties of Sandwich Core Materials</b>	ASTM C 273	Average Shear Stress – 7.2 N/mm <sup>2</sup> Average Shear Modulus – 0.8 N/mm <sup>2</sup>
<b>Flatwise Tensile Strength of Sandwich Construction</b>	ASTM C 297	Average Tensile Strength – 7.4 N/mm <sup>2</sup>
<b>Climbing Drum Peel for Adhesives</b>	ASTM D 1781	Average Peak Climbing Drum Peel Strength – 237.7 N/mm/mm width
<b>Flexural Properties of Sandwich Constructions</b>	ASTM C 393	Average Shear Stress – 1.57 N/mm <sup>2</sup>

The technical information provided herein is intended to provide users and potential users with general product information; this information should not be used as specifications for Alcotex or Alcotex FR. Product specifications and product warranty are available upon request from Alcotex Inc. The use of Alcotex and all activities related thereto are the sole responsibility of the purchaser and not the responsibility of Alcotex Inc. Nothing contained herein is intended to or shall be construed as a warranty, express or implied, as to Alcotex material. Always consult local building codes before use.

# coating performance

## All methods of testing meet the AAMA 2605 designation

Test Item	Test Method	Performance
<b>Color Uniformity</b>	AAMA 2605	Samples must meet minimum dry-film thickness requirements.
<b>Specular Gloss (60 °)</b>	AAMA 2605	Using a 60 degree gloss meter, the samples must meet minimum dry film thickness requirements. Gloss values shall be within $\pm 5$ units of the manufacturer's specification.
<b>Dry Film Hardness</b>	ASTM D 3363	HB minimum using Eagle Turquoise Pencil. No rupture of film.
<b>Flexibility : T-Bend</b>	ASTM D 4145	1-T
<b>Adhesion – Dry, Wet, and Boiling Water</b>	ASTM D 3359	Coating shall not pick off when subjected to a grid of 11 cuts x 11 cuts that are 1mm apart and taped with #600 Scotch Tape.
<b>Impact Resistance</b>	ASTM D 2794	Using a Gardner Variable Impact Tester with 5/8" mandrel, the coating must withstand reverse impact of 1.5 in-lb per mil substrate thickness. Coating shall adhere tightly to metal when subjected to #600 Scotch Tape pick-off test.
<b>Abrasion Resistance</b>	ASTM D 968	Using the falling sand method, the Abrasion Coefficient Value shall be a minimum of 40.
<b>Mortar Resistance</b>	ASTM C 207	Mortar prepared with 75 grams of building lime, 225 grams of dry sand, and approx. 100 grams of water shall dislodge easily from the painted surface. There shall be no loss of film adhesion or visual change.
<b>Chalk Resistance</b>	ASTM D 659	Chalking is measured on an exposed, unwashed painted surface and be no more than that represented by a No. 8 rating.
<b>Chemical Resistance</b>	ASTM D 1308	Utilizing 10% Muriatic Acid for an exposure time of 15 minutes, there shall be no loss of film adhesion or visual change when viewed by the unaided eye.
	ASTM D 1308	Utilizing 20% Sulfuric Acid for an exposure time of 18 hours, there shall be no loss of film adhesion or visual change when viewed by the unaided eye.
	ASTM D 2244	Utilizing 70% reagent grade Nitric Acid vapor for an exposure time of 30 minutes, there is a maximum color change of 5 Delta E units.

All Alcotex coatings are backed by a comprehensive finish warranty. Please contact your Alcotex representative for further details.



## fire rated (FR) core test results

Standard	Subject	Result
<b>NFPA 285 / UBC 26-9</b>	ISMA Test - Intermediate-Scale Multistory Apparatus	Passed
<b>ASTM E 119</b>	Fire Test of Building Construction and Materials	One and Two hour rated wall assembly successfully passed
<b>ASTM E 84</b>	Surface Burning Characteristics of Building Materials	Flame Spread Index : 0 Smoke Developed Index: ≤ 5
<b>UPITT Toxicity Test</b>	Investigation of the Toxic Potency of Combustion Products	Passed
<b>UBC 26-3</b>	Form Plastic System	Passed
<b>ASTM E 162</b>	Surface Flammability of Materials Using a Radiant Heat Energy Source	Flame Spread Index Average : 0 Range : 0 to 0
<b>ASTM E 648 / NFPA 253</b>	Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source	No Ignition No Smoke
<b>ASTM D 1929</b>	Determining Ignition Temperature of Plastics	Spontaneous ignition Temperature STI : 450°C (842°F) Flash Ignition Temperature FTI : 440°C (824°F)
<b>ASTM D 635</b>	Time of Burning of Self-Supporting Plastics in a Horizontal Position	No Average Time Burning (ATB) No Average Extent of Burning (AEB)
<b>ASTM E 662</b>	Specific Optical Density of Smoke Generated by Solid Materials	Flaming : 18.20 Non-flaming : 0.69
<b>ASTM D 2015</b>	Gross Calorific Value of Coal and Coke by the Adiabatic Bomb Calorimeter	4,080 BTU/lb.
<b>CAN/ULC S102</b>	Method of Test for Surface Burning Characteristics of Building Materials and Assemblies	Flame Spread Index: 0 Smoke Developed Index : 0
<b>CAN/ULC S134</b>	Standard Method of Fire Test of Exterior Wall Assemblies	Passed



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