

ARBORITE® METAL CORE LAMINATE

Manufacturer

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Product Description

Arborite® Metal Core Laminate is a high-pressure decorative laminate product designed for interior surfaces requiring high strength, fire and heat resistance, ease of maintenance, and design flexibility. When bonded to the appropriate substrate, Arborite® Metal Core is ideal for use as wall, ceiling, and door panels in mass transit, marine, and other light industrial and/or commercial applications.

Product Composition

Arborite® Metal Core Laminate is a high-pressure decorative laminate produced by thermally fusing melamine and phenolic impregnated papers to an aluminum core at pressures greater than 1000 pounds per square inch at temperatures approaching 300°F (149°C).

Arborite® Metal Core Laminate is manufactured in five standard thicknesses with precleaned aluminum. The standard alloy and hardness of the aluminum used in Arborite® Metal Core Laminate is 5052-H32. Non-standard aluminum sizes, thicknesses, and alloys are available on special order, subject to approval by the manufacturer. Please contact Arborite® for further information.

Basic Limitations

Arborite® Metal Core Laminate is intended for interior use only and should be protected from continuous exposure to direct sunlight and weathering.

Arborite® Metal Core Laminate is not a structural material and must be bonded to a suitable substrate (see section 4). It should not be used as direct covering for plaster or concrete walls or for gypsum wallboard. It should not be used as a cutting surface.

The decorative face of Arborite® Metal Core Laminate should not be exposed to flame, molten metal, metallic sparks or temperatures exceeding 356°F (180°C).

Pattern Availability

Arborite® Metal Core Laminate is available in all Arborite and most Wilsonart patterns.

Please verify pattern, size and finish availability.

Finishes Availability

- **#59** Non-directional, non-glare texture. *Glossometer reading: MD and CD 16 ± 2.*

NOTE: Glossometer readings are made at a 60° angle of incidence. MD means the machine direction of a laminate sheet and CD refers to the cross direction.

Product Offerings

Type	Aluminum Core	Overall	Weight PSF
Type 953 Aluminum core	0.025" (0.64mm)	0.038" ± 0.005" (0.97mm ± 0.13mm)	0.51#
Type 958 Aluminum core	0.050" (1.3mm)	0.063" ± 0.005" (1.6mm ± 0.13mm)	0.87#
Type 960 Aluminum core	0.063" (1.6mm)	0.076" ± 0.005" (1.9mm ± 0.13mm)	1.057#
Type 964 Aluminum core	0.080" (2.032mm)	0.093" ± 0.005" (2.362mm ± 0.101mm)	1.185#
Type 965 Aluminum core	0.090" (2.286mm)	0.103 ± 0.005" (2.692mm ± 0.101mm)	1.366#

Other thicknesses available on a 'special order' basis

Standard Sizes

Sizes Available (Nominal)				
4' x 8' 1219mm x 2438mm	4' x 10' 1219mm x 3048mm	5' x 8' 1524mm x 2438mm	5' x 10' 1524mm x 3048mm	5' x 12' 1524mm x 3658mm

3' widths and other sizes available on a 'special order' basis

Sheet Tolerance

±1/4"

Note: Type 953 is typically manufactured with oversized aluminum with filed edges which can result in as much as an additional 2" in length and width. If net sized aluminum is used or sheared edges are requested, sheets may be ±1/4" in length or width.

Cut-To-Size

Nominal cut-to-size is available for material up to 10' in length using a power shear. Please contact your Arborite representative for your specific application.

Minimum Order Quantity

Stocked aluminum core: 2 sheets per size and product type. Orders must be placed in increments of 2, i.e., 2, 4, 6 etc.

Special Order aluminum core: As required by the aluminum distributor.

Note: Sheet size availability is dependent on inventory on hand by specific aluminum thickness. Please consult your Arborite representative for additional details.

Technical Information

National Electrical Manufacturers Association (NEMA) is the nationally recognized standards organization for high-pressure decorative laminate. NEMA standards have not been established for metal-backed decorative laminate. NEMA LD3-2000 testing procedures were used to obtain the following data:

Typical Physical Properties of Arborite® Metal Core Laminate

NEMA Test	NEMA HGS Requirements	Results
Surface Wear Resistance	400 cycles (min)	700 cycles
Boiling Water Resistance	No effect	No effect
High Temperature Resistance	Slight effect	No effect
Radiant Heat Resistance	125 seconds (min)	No effect – test stopped after 10 minutes of exposure
Conductive Heat Resistance	N/a	No effect
Dimensional Stability machine direction cross direction	0.5% (max) 0.8% (max)	No measurable change No measurable change
Cleanability	20 cycles (max)	10 cycles
Light Resistance	Slight effect	Slight effect
Impact Resistance	Supported Unsupported	70" (1524mm) to end point 144" (3657.6mm) (No cracks but surface dented)
Special Test		Results
Moisture Absorption		Less than 1%
High Temperature/High Humidity 100° F (38° C), 100% RH		No loss of adhesion after 10 days in test environment

Typical Transit Test Data

Arborite® Metal Core Laminate meets the applicable requirements set forth in *NFPA 130 Fixed Guideway Transit Systems*. The following data is representative of the performance of Arborite® Metal Core Laminate in fire and physical testing generally recognized and required in the transit industry:

Test Method	Results
ASTM E 162 Surface Flammability of Materials Using a Radiant Heat Energy Source	Is ≤ 5
ASTM E 662 Specific Optical Density of Smoke Generated by Solid Materials	Ds(1.5) < 10 Ds(4.0) < 85 Dm(corr) < 110
SMP 800-C Toxicity	Meets Requirements (Call for Results)
ASTM D 638 Tensile Strength Machine Direction Cross Direction	24,500 psi 23,000 psi
ASTM D 638 Modulus of Elasticity Machine Direction Cross Direction	8.0 x 10 ⁶ psi 6.8 x 10 ⁶ psi
ASTM D 790 Flexural Strength Machine Direction Cross Direction	28,000 psi 27,000 psi
ASTM D 790 Modulus of Elasticity Machine Direction Cross Direction	4.0 x 10 ⁶ psi 3.7 x 10 ⁶ psi
ASTM D 952 Internal Bond Strength	3,000 psi

Installation: Fabrication and Assembly Recommendations

Assembled pieces should meet the specifications of KCMA (Kitchen Cabinetmakers Manufacturers Association) ANSI-161.2-1998 (revised) and "Architectural Woodwork Quality Standards, Guide Specifications and Quality Certification Program" guidelines of the Architectural Woodwork Institute where applicable.

Substrates

Arborite® Metal Core Laminate must be bonded to a substrate of reliable quality and appropriate fire rating. Suitable substrates for Arborite® Metal Core Laminate are particleboard, fiberboard, plywood, solid wood, Nomex® paper or aluminum honeycomb, or composition board of reliable quality.

Adhesives

Arborite® Metal Core Laminate should be bonded to appropriate substrates with permanent type adhesives following the techniques recommended by the adhesive manufacturer. Recommended adhesives included specialized PVAs, epoxies, or contact cement.

Methods

The face and backing laminates and the substrate should be conditioned in the same environment for 48 hours prior to fabrication to ensure an appropriate moisture balance. Recommended acclimation conditions are 75°F (24°C) and 50% relative humidity.

To avoid stress cracking, do not use square-cut inside corners. All inside corners should have a minimum of 1/8" (3.18mm) radius and all edges should be routed smooth. Stress cracking at door or window cutouts due to torque or flex is virtually nonexistent with Metal Core Laminate when fabricated in this manner.

Arborite® Metal Core Laminate may be sized with power shears (such as Bosch 16-gauge Unishear, Model 1500) prior to fabrication. The decorative face should be face up and protected from damage while the sheet is being cut. After cutting, edges may need to be lightly filed.

Product Type 953, Metal Core Laminate, may be cold-formed using roll forming equipment to an inside radius of 2 inches (51mm) and an outside radius of 4 inches (102mm). **Arborite® Metal Core Laminate should not be heat formed.**

Oversized holes should be drilled for screws or bolts. Screws or bolts should be slightly countersunk into the face of the laminate-clad substrate.

Caution: The decorative face of Arborite® Metal Core Laminate is thin, and the core is metal. This creates a surface that is a conductor of electricity. Unintentional exposure to an electrical current can cause an electrical shock.

Maintenance

The decorative surface may be cleaned with warm water and mild soaps, such as those used for hands or dishes. Do not use cleansers that contain abrasives, acids, or alkalis as they may damage the decorative surface. Cleaners containing organic solvents or other compounds should be tested in a small, discrete to evaluate the effects on the decorative surface prior to their use.

Warranty

Arborite, division de/of ITW Canada warrants that, under normal use and service, this shall conform to the standards set forth on the applicable technical data sheets for a period of twelve (12) months from the date of sale to the first consumer purchaser. Dealers and distributors are provided with the technical data sheets that contain specific standards of performance for the products. In the event that this product does not perform as warranted, the first purchaser's sole remedy shall be limited to repair or replacement of all or any part of the product that is defective, at the manufacturer's sole discretion.

This warranty applies only to product:

1. In its original installation; and
2. Purchased by the first consumer purchaser.

This warranty is not transferable, and expires upon resale or transfer by the first consumer purchaser. This warranty shall not apply to defects or damage arising for any of the following:

1. Accidents, abuse or misuse;
2. Exposure to extreme temperature;
3. Improper fabrication or installation; or
4. Improper maintenance.

NO OTHER WARRANTIES, EXPRESS OR IMPLIED, ARE MADE. UNDER NO CIRCUMSTANCES SHALL ARBORITE BE LIABLE FOR ANY LOSS OR DAMAGE ARISING FROM THE PURCHASE, USE, OR INABILITY TO USE THIS PRODUCT, OR FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES. NO FABRICATOR, INSTALLER, DEALER AGENT, OR EMPLOYEE OF ARBORITE, DIVISION DE/OF ITW CANADA HAS THE AUTHORITY TO MODIFY THE OBLIGATIONS OR LIMITATIONS OF THIS WARRANTY.

This warranty gives you specific legal rights, and you also may have other rights that vary from state to state; therefore, some of the limitations stated above may not apply to you. It is to your benefit to save your documentation upon purchase of a product.