

## **ARBORITE® ARBORON / EPG INDUSTRIAL GRADE LAMINATE**

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**Arboron®** is composed of papers impregnated with melamine and phenolic thermosetting resins, consolidated under high pressure and temperature into dense, uniform sheets with good electrical and mechanical properties. The melamine surface of **Arboron®** provides excellent chemical and abrasion resistance. Its very high strength-to-weight ratio (one half the weight of aluminum) and relative ease of fabrication (carbide tipped tools) make **Arboron®** your first choice for new designs.

**EPG®** is a paper-based, solid phenolic laminate impregnated with phenolic thermosetting resins, consolidated under high pressure and temperature into dense, uniform sheets with good electrical and mechanical properties. EPG is an XPC grade industrial laminate that is ideal for cold punching and shearing

**Arboron® and EPG®** comply with NEMA LI 1 thickness and flatness standards and are listed by **Underwriters Laboratories Inc.®** as Industrial Laminates under File E194097. **Arboron®** and **EPG®** are manufactured by Arborite – Div of/de ITW Canada, an ISO 9001-2000 certified company.

**Arboron®** and **EPG** have been successfully used in a number of applications including:

### Electrical:

- Electrical control and test panels
- Switchgear mounting
- Bus bar insulation
- Phase barriers
- Electrical enclosures

### Mechanical:

- Drill jigs and fixtures
- Non-conductive work benches
- Needle trade templates
- Die stock
- Transportation industry panels
- Conveyer applications
- Stage flooring

<b>ARBORON</b>				
<b>Physical Properties</b>				
	<b>Test Method</b>	<b>Value</b>		
Density		86.4 lbs/ft3		
Specific Gravity		1.39 g/cm3		
Tensile Strength	ASTM D 638	MD - 22,000 psi CD - 14,000 psi		
Flexural Strength	ASTM D 790	MD - 30,000 psi CD - 24,000 psi		
Compressive Strength	ASTM D 695	Flatwise - 45,000 psi Edgewise - 26,000 psi		
Modulus of Elasticity	ASTM D 790	MD - 2,000 ksi CD - 1,300 ksi		
Izod Impact Strength	ASTM D 256	MD - 1.0 ft-lb/in CD - 0.82 ft-lb/in		
Bond Strength	ASTM D 732	2,000 psi		
Rockwell Hardness	ASTM D 785	113 M Scale		
Shear Strength (Punch Tool)	ASTM D 732	13,000 psi		
Wrap or Twist Tolerance	NEMA LI1	Meets Specification		
Thickness Tolerance	NEMA LI1	Meets Specification		
Oil Compatibility	ASTM D 3455	No effect on electrical insulating oil/transformer oil		
Coefficient of Friction	ASTM C 1028	Dry - 0.77 Wet - 0.73		
Smoke Density	ASTM E 662	Meets NFPA 130 (National Fire Protection Association)		
<b>Electrical Properties</b>				
	<b>Test Method</b>	<b>Value</b>		
Relative Thermal Index	Mechanical & Electrical	95°C		
Flame Classification	UL 94	0.061" - 94HB 0.240" - 94VO		
Arc Resistance	ASTM D 495	88 sec		

<b>ARBORON</b>					
<b>Electrical Properties</b>	<b>Test Method</b>	<b>Value</b>			
Dielectric Constant	ASTM D 150				
1/8"		7.57			
1/2"		7.67			
Dissipation Factor @ 1.0 kHz	ASTM D 150				
1/8"		0.0827			
1/2"		0.1087			
Dielectric Strength	ASTM D 149				
	Step/Step Perpendicular	Short Time Perpendicular			
1/8"	347 volts/mil	439 volts/mil			
1/2"	129 volts/mil	158 volts/mil			
Dielectric Breakdown	ASTM D 149				
		Step/Step Parallel	Step/Step Perpendicular	Short Time Parallel	Short Time Perpendicular
1/8"		60 kV	45 kV	67 kV	57 kV
1/2"		60 kV	65 kV	62 kV	80 kV
Resistivity	ASTM D 257				
		Insulation Resistance	Surface Resistance	Volume Resistance	
1/8"		3.1 x 10 <sup>10</sup> Ohms	9.2 x 10 <sup>11</sup> Ohms	5.7 x 10 <sup>11</sup> Ohms-Cm	
1/2"		8.0 x 10 <sup>9</sup> Ohms	1.3 x 10 <sup>11</sup> Ohms	1.4 x 10 <sup>11</sup> Ohms-Cm	
Comparative Track Index (CTI)	600 V				
High Ampere Arc Ignition (HAI)	200 +				
High Voltage Tracking Rate (HVTR)	0 mm/min				
Hot Wire Ignition (HWI)	107 sec				

<b>EPG</b>			
<b>Physical Properties</b>			
	<b>Test Method</b>	<b>Value</b>	
Density		86.4 lbs/ft <sup>3</sup>	
Specific Gravity		1.39 g/cm <sup>3</sup>	
Tensile Strength	ASTM D 638	MD - 30,000 psi CD - 19,000 psi	
Flexural Strength	ASTM D 790	MD - 30,300 psi CD - 24,000 psi	
Compressive Strength	ASTM D 695	Flatwise - 45,000 psi Edgewise - 26,000 psi	
Modulus of Elasticity	ASTM D 790	MD - 2,000 ksi CD - 1,300 ksi	
Izod Impact Strength	ASTM D 256	MD - 1.0 ft-lb/in CD - 0.82 ft-lb/in	
Bond Strength	ASTM D 732	2,000 psi	
Rockwell Hardness	ASTM D 785	113 M Scale	
Shear Strength (Punch Tool)	ASTM D 732	14,000 psi	
Water Absorption	ASTM D 570	3.58%	
Wrap or Twist Tolerance	NEMA LI1	Meets Specification	
Thickness Tolerance	NEMA LI1	Meets Specification	
Oil Compatibility	ASTM D 3455	No effect on electrical insulating oil/transformer oil	
Radiant Flux	ASTM E 648	Class A/Class 1	
Formaldehyde Emission	ASTM E 1333	0.03 ppm	
Coefficient of Friction	ASTM C 1028	Dry - 0.64 Wet - 0.63	

<b>EPG</b>			
<b>Electrical Properties</b>	<b>Test Method</b>	<b>Value</b>	
Relative Thermal Index	Mechanical & Electrical	130°C	
Flame Classification	UL 94	0.028" - 94HB 0.062" - 94HB	
Arc Resistance	ASTM D 495		
1/8"		41 sec	
1/2"		54 sec	
Dielectric Constant @ 1.0 kHz	ASTM D 150		
1/8"		8.1	
1/2"		9.3	
Dissipation Factor	ASTM D 150		
1/8"		0.151	
1/2"		0.223	
Dielectric Strength	ASTM D 149		
		Step/Step Perpendicular	Short Time Perpendicular
1/8"		230 volts/mil	340 volts/mil
1/2"		70 volts/mil	130 volts/mil
Dielectric Breakdown	ASTM D 149		
		Step/Step Perpendicular	Short Time Perpendicular
1/8"		30 kV	43 kV
1/2"		36 kV	65 kV

## Warranty

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Arborite, division of ITW Canada, warrants that, under normal use and service, the material and workmanship of its products 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 which contain specific standards of performance for the products. In the event that an **Arborite** 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 which 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 from 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 THE MANUFACTURER 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, A DIVISION OF ITW CANADA , HAS THE AUTHORITY TO MODIFY THE OBLIGATIONS OR LIMITATION OF THIS WARRANTY.**

This warranty gives you specific legal rights, and you may also have other rights which 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.