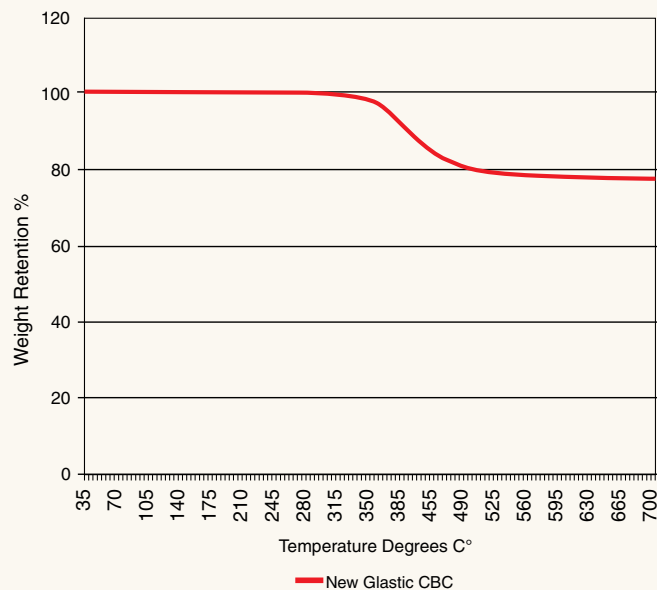
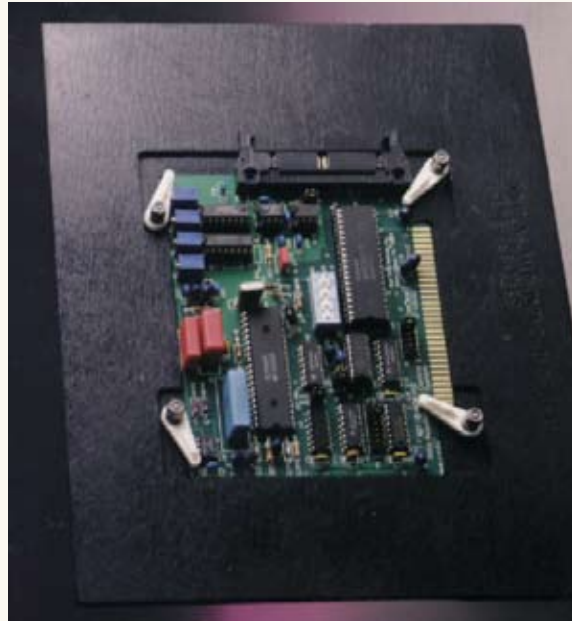


# CBC Circuit Board Carrier Materials

## Series CBC High-Temperature Materials for Lead-Free Circuit Board Carrier Applications

Glastic Series CBC engineered composite materials are designed to withstand the high temperatures of RoHS compliant lead-free Circuit Board Carrier applications to help ensure circuit board quality and long pallet life. These materials feature:

- Glass transition temperature ratings up to 401° F (205° C) with a maximum surface operating temperature of 572° F (300° C).
- High-density, isotropic glass construction ensures dimensional stability at high temperatures. Reduces the possibility of warping and delamination.
- Highly cross-linked polymer construction resists loss of mass at high temperatures.
- Unique chemical composition enables performance characteristics beyond those of normal glass transition temperatures.
- Low thermal absorption materials ease handling by leaving heat in the solder bath.
- Micro-sanded finish provides tight tolerances.
- Lighter weight than metal or other composite materials.
- Exceptional dimensional stability and flatness.
- Excellent machineability.



This chart shows the high-temperature capabilities of Glastic Series CBC engineered materials.



# Circuit Board Carrier Materials for Use in Lead-Free Applications

General Information	Procedure	CBC-BSC	CBC-OSC	CBC-GNC
Standard Color	-	Black	Gray	Green
ESD Safe	-	Yes	Yes	No
Chemical Resistance	-	Very Good	Very Good	Very Good
<b>Mechanical Properties</b>				
Flexural Strength LW at 77°F (25°C) in Psi (Mpa)	ASTM D 790	*50,000 (344)	*48,000 (344)	*52,000 (344)
Flexural Strength CW at 77°F (25°C) in Psi (Mpa)	ASTM D 790	*48,000 (330)	*46,000 (330)	*50,000 (330)
IZOD Impact Strength LW/CW in Ft.Lb./In. (J/cm)	ASTM D 256	*19/15 (25/20)	*9/10 (12/13)	*12/11 (16/21)
Barcol Hardness	ASTM D 2583	65 / 75	65 / 75	65 / 75
Water Absorption in % by weight	ASTM D 570	<0.2%	<0.1%	<0.1%
Specific Gravity	ASTM D 792	1.9 – 2.1	1.9 – 2.1	1.9 – 2.1
Tensile Strength LW at 77°F (25°C) in Psi (Mpa)	ASTM D 638	<b>Engineering data available upon request</b>		
Tensile Strength CW at 77°F (25°C) in Psi (Mpa)	ASTM D 638			
Tensile Strength at 266°F (130°C) in Psi (Mpa)	ASTM D 638			
Tensile Strength at 302°F (150°C) in Psi (Mpa)	ASTM D 638			
Tensile Modulus at 77°F (25°C) in Psi. 1 x 10 <sup>6</sup> (Mpa)	ASTM D 638			
Flexural Strength at 266°F (130°C) in Psi (Mpa)	ASTM D 790			
Flexural Strength at 302°F (150°C) in Psi (Mpa)	ASTM D 790			
Flexural Modulus at 77°F (25°C) in Psi 1 x 10 <sup>6</sup> (Mpa)	ASTM D 790			
Comp. Strength, Vertical at 77°F (25°C) in Psi (Mpa)	ASTM D 695			
Comp. Strength, Horz. at 77°F (25°C) in Psi (Mpa)	ASTM D 695			
<b>Electrical Properties</b>				
Surface Resistivity (ohms)	ASTM D 257	10 <sup>5</sup> -10 <sup>9</sup>	10 <sup>7</sup> -10 <sup>11</sup>	>10 <sup>10</sup>
<b>Flame-Resistance Properties</b>				
UL Subject 94	UL 94	HB	HB	HB
<b>Thermal Properties</b>				
Coefficient of Thermal Expansion (para.) K <sup>-1</sup>	ASTM D 696	7.1 x 10 <sup>-6</sup>	7.1 x 10 <sup>-6</sup>	7.1 x 10 <sup>-6</sup>
Coefficient of Thermal Expansion (perp.) K <sup>-1</sup>	ASTM D 696	20.5 x 10 <sup>-6</sup>	20.5 x 10 <sup>-6</sup>	20.5 x 10 <sup>-6</sup>
Glass Transition Temperature T <sub>g</sub> in °F (°C), DMA test	ASTM E	401 (205)	401 (205)	401 (205)
Thermal Decomposition Temperature T <sub>d</sub> in °F (C°) @1% loss @5% loss @10% loss	ASTM E 1641	644°F (340°C) 734°F (390°C) 770°F (410°C)	644°F (340°C) 734°F (390°C) 770°F (410°C)	644°F (340°C) 734°F (390°C) 770°F (410°C)
Loss on ignition (min./max.)	UL 746A	33/38	28/33	30/35
Maximum Surface Operating Temp. in °F (C°)	-	572°F (300°C)	572°F (300°C)	572°F (300°C)
Solder Float Test 24 hours at 536°F(280°C)	Based on IPC-TM-650	†Pass	†Pass	†Pass

\* - Values are an average of typical L.W. and C.W. values.

All - Typical values, after post-baking.

† Any test results that require subjective visual evaluation, results were agreed upon by a cross-functional team.

- The above values are measured averages and not guaranteed.

- Performance of Glastic Corporation's Solder Pallet will vary depending on the process parameters being used.

- Glastic recommends that the pallets are periodically cleaned to achieve the best performance. Refer to technical bulletin #1.



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