Accura Bluestone

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A high stiffness engineered nanocomposite that opens new applications for stereolithography users.

Aerodynamic and functional parts produced with Bluestone nano-composite plastic. Images center and at right) courtesy of Renault F1 Team.

APPLICATIONS

-Wind-tunnel testing for the motorsports and aerospace industries

-Production of CMM/inspection and assembly jigs and fixtures

-Lighting design and other applications where heat-generation from electrical components may be a factor

-Covers and enclosures of electrical and mechanical components

-Water-handling products, such as pump and impeller design or other components

-Automotive "under-the-hood" applications

-Housings and enclosures that require high stiffness and rigidity, such as those for business machines

-Electronic applications, such as insulating components, sockets, and areas where ceremics might be used

FEATURES

-High temperature resistance

-Excellent accuracy

-High humidity resistance

-Non-settling formulation

-Fully developed and tested build styles

BENEFITS

-Bluestone parts resist deformation even under heavy loads

-Resists temperatures up to 250 °C, making it suitable for tooling or other demanding applications

-Part retain their properties over time

-No expensive mixing equipment required

-Consistent mechanical properties, even on long builds

-Improves/enhance demanding applications: windtunnel, soft tooling, injection mold tooling

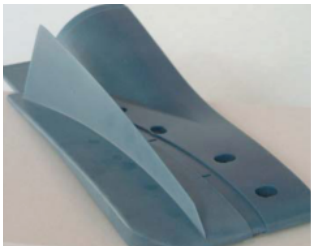
-Maximize reliability with no user R&D

"Bluestone resin is an excellent fit for applications requiring added stiffness and thermal resistance. This material is perfect for applications in aerodynamics, lighting applications (such as reflectors), and masters for vacuum casting and thermoforming. As a service provider we need to have flexibility in our material offerings, and Bluestone resin allows us to fulfill many customers' needs for a variety of applications. Now we can offer our customers a unique material with improved part quality qand functionality."

-Rainer Neumann, General manager, 4D Concepts GmbH

Bluestone material is highly suited to prototype electrical enclosures where elevated temperatures might be involved, such as this automotive component.

Ideal for functional components that might be used in aggressive environments.
Image courtesy of Renault F1 Team.



Bluestone nanocomposite material is ideal for wind-tunnel testing - where stiff components are required.

TECHNICAL DATA

Liquid Material

MEASUREMENT	CONDITION	VALUE:
Appearance		Opaque blue
Liquid Density	@ 25 °C (77 °F)	1.70 g/cm³
Solid Density	@ 25 °C (77 °F)	1.78 g/cm³
Viscosity	@ 30 °C (86 °F)	1200 - 1800 cps
Penetration Depth (Dp) *		4.1 mils
Critical Exposure (Ec) *		6.9 mJ/cm²
Tested Build Styles		EXACT™

Post-cured Material

MEASUREMENT	CONDITION	VALUE:
Tensile Strength	ASTM D 638	66 - 68 MPa (9.6 - 9.8 KSI)
Tensile Modulus	ASTM D 638	7,600 - 11,700 MPa (1,100 - 1,700 KSI)
Elongation at Break (%)	ASTM D 638	1.4 - 2.4 %
Flexural Strength	ASTM D 790	124 - 154 MPa (18 - 22.3 KSI)
Flexural Modulus	ASTM D 790	8,300 - 9,800 MPa (1,200 - 1,417 KSI)
Impact Strength (Notched Izod)	ASTM D 256	13 - 17 J/m (0.24 - 0.32 ft-lbs/in)
Heat Deflection Temperature	ASTM D 648	
	@ 66 PSI	65 - 66 °C (149 - 151 °F)
	@ 264 PSI	65 °C (149 °F)
	@ 66 PSI with 120 °C Thermal Postcure	267 - 284 °C (513 - 543 °F)
Hardness, Shore D		92
Co-efficient of Thermal Expansion	ASTM E 831-93	
	TMA (T<Tg, 0 - 20°C)	33 - 44 (x 10⁻⁶ m/m °C)
	TMA (T>Tg, 90 - 150°C)	81 - 98 (x 10⁻⁶ m/m °C)
Glass Transition (Tg)	DMA, E"	71 - 83 °C (160 - 181 °F)

* Dp/Ec values are the same on all systems.

About Proto3000

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Our business operates in four international market segments; Product Development, Manufacturing, Engineering, and Dentistry. Our solutions include rapid prototyping, 3D printing, engineering design, laser scanning and digital dental products and services.