STEREOLITHOGRAPHY

Accura® Bluestone™ Plastic

Accura® Bluestone™ Plastic is optimally designed for production of high rigidity thermally resistant models such as the Formula 1 windtunnel models show.

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

Applications

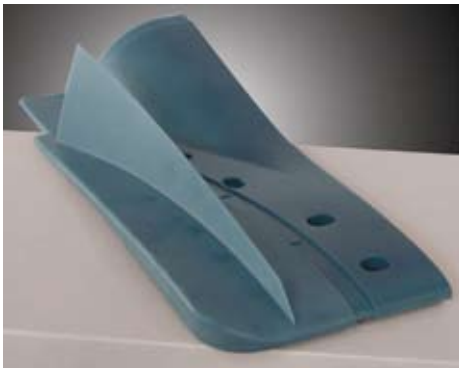
- Wind-tunnel testing for the motor sports and aerospace industries
- Production of CMM/inspection and assembly jigs and fixtures
- Lighting design and other applications where heat-generation from electrical components may be a factor
- Covers and enclosures of electrical and mechanical components
- 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, connectors, adaptor fittings, bases, sockets, and areas where ceramics might be used

Features

- Exceptional stiffness
- High temperature resistance
- Excellent accuracy
- High humidity resistance
- Non-settling formulation
- Fully developed and tested build styles

Benefits

- Accura 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: wind tunnel, soft tooling, injection mold tooling
- Maximize reliability with no user R&D



Aerodynamic part
Image courtesy of Renault F1 Team.

Suited for electronic enclosures, and automotive lighting components where heat may be encountered.

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For use with solid-state stereolithography (SLA®) Systems

"Accura® Bluestone™ nanocomposite has been an excellent addition to our expanding Accura® SL product line. Bluestone™ has outstanding material properties including exceptional stiffness and an extremely high heat deflection. A naval customer came to APP for a propeller that needed to withstand real time testing in an ocean environment. The propeller was produced from Bluestone™ and the customer was able to successfully perform testing without product failure. American Precision Prototyping customers demand accurate parts made with the best materials and Bluestone™ has delivered every time. It is truly the best SL nanocomposite available today."

Jason Dickman-President
American Precision Prototypes LLC

Bluestone™ nanocomposite material is ideal for wind-tunnel testing - where stiff components are required.
Image courtesy of Renault F1 Team.

Technical Data

Liquid Material

Measurement	Condition	Value
Appearance		Opaque blue
Liquid Density	@25 °C (77 °F)	1.70 g/cm^3
Solid Density	@25 °C (77 °F)	1.78 g/cm^3
Viscosity	@30 °C (86 °F)	1200 - 1800 cps
Penetration Depth (Dp)*		4.1 mils
Critical Exposure(Ec)*		6.9 mJ/cm^2
Tested Build Styles		EXACT™

Post-Cured Material

Measurement	Condition	Metric	U.S.
Tensile Strength	ASTM D 638	66 - 68 MPa	6.9 - 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 %	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-lb/in
Heat Deflection Temperature UV Postcure only UV Postcure only UV + Thermal Postcure (120°C)	ASTM D 648 @ 66 PSI @ 264 PSI @ 66 PSI	 65 - 66 °C 65 °C 267 - 284 °C	 149 - 151 °F 149 °F 513 - 543 °F
Hardness, Shore D			92
Co-Effcient of Thermal Expansion	ASTM E 831-93 TMA (T<Tg, 0-20 °C) TMA (T<Tg, 90-150 °C)	 33 - 44 (x10-6 m/m °C) 81 - 98 (x10-6 m/m °C)	
Glass Transition (Tg)	DMA, E"	71 - 83 °C	160 - 181°F

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

3D Systems Corporation
333 Three D Systems Circle
Rock Hill, SC 29730 U.S.A.

Tel: +1 803.326.4080
Toll-free: 800.889.2964
Fax: +1 803.324.8810

moreinfo@3dsystems.com
www.3dsystems.com
NASDAQ: TDSC

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