Services Provided By

PROTO3000
3D Engineering Solutions

Accura® 45HC plastic

for use with SLA® 250 systems

A high speed material, with excellent thermal and moisture resistance for producing functional prototypes in 3D Systems' SLA 250 systems.

APPLICATIONS

- High temperature testing:
  - Automotive "under-the-hood" parts
  - Lighting components and accessories
  - HVAC components
- Thin-wall enclosures that require high stiffness and durability
- Parts involved in water-base or high humidity testing
  - Consumer appliance
  - Fluid flow/visualization
- Form, fit and function testing
- General purpose prototyping
- Investment casting using QuickCast™ build style
- Rigid snap-fit assemblies

BENEFITS

Fast build speed

- Provides build speeds that are significantly faster than other resin - up to two times the speed of SL 5170
- Fast build time results in better utilization of your older SL equipment
- Build larger parts than were previously practical with other materials
- Faster delivery to end customers

High temperature resistance combined with good durability

- Suitable for use at temperatures in excess of 100 °C (212 °F)
- Durable enough for limited snap-fit testing

Nylon 6:6 plastic properties

- Suitable for thin-walled parts that require the stiffness of high performance engineering plastics

Parts retain both accuracy and stiffness even in wet and humid environments

- Longer part life with out significant degradation
- Parts that can be used in wet applications such as consumer appliance design, with out excessive softening (or swelling)

Fully developed and tested build styles

- Maximize reliability with no user R&D

Accura® 45HC plastic

For use with select SLA® 250 systems

Prototype of an electric toothbrush assembly produced with Accura 45HC plastic material.

TECHNICAL DATA

Liquid Material

MEASUREMENT	CONDITION	VALUE:
Appearance		Clear amber
Liquid Density	@ 25°C (77°F)	1.14 g/cm^3
Solid Density	@ 25°C (77°F)	1.2 g/cm^3
Viscosity	@ 30°C (86°F)	475 cps
Penetration Depth (Dp)		5.1 mils
Critical Exposure (Ec)		7.4 mJ/cm^2
Tested Build Styles		FAST™, EXACT™ and QuickCast™

Post-cured Material

MEASUREMENT	CONDITION	VALUE:
Tensile Strength	ASTM D 638	59 - 61 MPa (8,520 - 8,860 PSI)
Tensile Modulus	ASTM D 638	2,760 - 2,960 MPa (400 - 430 KSI)
Elongation at Break **(%)**	ASTM D 638	4.8 - 5.4%
Flexural Strength	ASTM D 790	94 - 101 MPa (13,700 - 14,000 PSI)
Flexural Modulus	ASTM D 790	2,760 - 2,900 MPa (400 - 420 KSI)
Impact Strength (Notched Izod)	ASTM D 256	11 - 16 J/m (0.2 - 0.3 ft-lbs/in)
Heat Deflection Temperature	ASTM D 648 @ 66 PSI @ 264 PSI @ 66 PSI with 160 °C Thermal Postcure	 58 °C (136 °F) 51 °C (124 °F) 103 °C (217 °F)
Hardness, Shore D		87
Co-efficient of Thermal Expansion	ASTM E 831-93 TMA (T<Tg, 0 - 20°C) TMA (T>Tg, 90 - 150°C)	 72 x 10^{-6} m/m °C 160 x 10^{-6} m/m °C
Glass Transition (Tg)	DMA, E"	66 - 87 °C (151- 189 °F)

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