

# Stereolithography (SL) Material:

# Accura® si 45HC



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

## Features & 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 utilisation 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 without significant degradation
- Parts that can be used in wet applications such as consumer appliance design, without excessive softening (or swelling)

### Fully developed and tested build styles from 3D Systems

- Plug & play styles require no user “experimentation”
- Highly reliable and consistent styles deliver an outstanding build success rate

## Applications:

- High temperature testing:
  - Automotive "under-the-bonnet" 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/visualisation
- Form, fit and function testing
- General purpose prototyping
- Investment casting using QuickCast™ build style
- Rigid snap-fit assemblies



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

# Specifications – Accura si 45HC SL material

For use with SLA 250 systems.

## Liquid Material

MEASUREMENT	CONDITION	VALUE:
Appearance		Clear amber
Liquid Density	@ 25°C (77°F)	1.14 g/cm <sup>3</sup>
Solid Density	@ 25°C (77°F)	1.2 g/cm <sup>3</sup>
Viscosity	@ 30°C (86°F)	475 cps
Penetration Depth (Dp) *		5.1 mils
Critical Exposure (Ec) *		7.4 mJ/cm <sup>2</sup>
Tested Build Styles		FAST™, EXACT™, 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	58°C	136°F
	@ 264 PSI	51°C	124°F
	@ 66 PSI with Thermal Postcure	103°C	217°F
	@ 264 PSI with Thermal Postcure	86°C	187°F
Hardness, Shore D		87	
Co-efficient of Thermal Expansion	ASTM E 831-93		
	TMA (T<T <sub>g</sub> , 0 - 20°C)	72 x 10 <sup>-6</sup> m/m °C	
	TMA (T>T <sub>g</sub> , 90 - 150°C)	160 x 10 <sup>-6</sup> m/m °C	
Glass Transition (T <sub>g</sub> )	DMA, E''	66°C - 87°C	151°F - 189°F

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



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