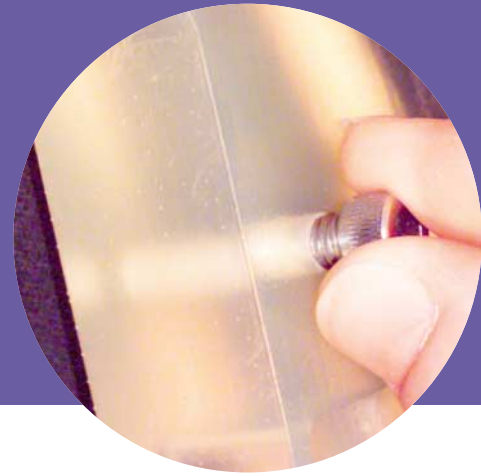




ACCURA[®] SI 40 MATERIAL

for the SLA[®] Viper si2, 3500, 5000 and 7000 systems

SOLID IMAGING MATERIALS



The Accura SI 40 material is the first SL material to combine high temperature resistance with toughness.

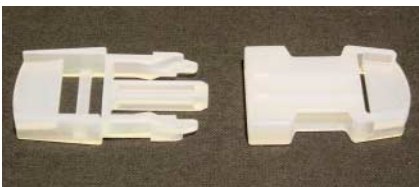
High temperature applications without the expense of brittleness

Accura SI 40 material is the first stereolithography material to mimic Nylon 6:6, allowing parts to be used in true under-the-hood applications requiring high temperature without the limitation of brittleness and breakage.



Excellent mechanical properties

Offering an attractive mix of stiffness and elongation to break, Accura SI 40 material is suitable for a large number of applications.



Outstanding part quality

With optical clarity, smooth side walls, a near-mirror top surface, tack-free down face, parts built with the SI 40 material require minimal finishing. A thin cured line-width produces excellent feature resolution.



Long vat life

The Accura SI 40 material maintains good recoating characteristics and low viscosity without adding viscosity stabilisers, resulting in consistent, trouble-free building.

High part yield

The Accura SI 40 material builds green strength quickly with good layer to layer adhesion for first time success. The Accura SI 40 material is also build chamber environment independent.

Accurate, stable parts

The Accura SI 40 material is an accurate material with relatively low linear or differential shrinkage. Parts maintain their rigidity irrespective of their environment.

Build process you can depend on

3D Systems invests time and highly trained resources to develop and optimise the build parameters on accuracy, part quality and throughput for the Accura SL materials to reduce overall labour time.

Typical Applications

- High temperature applications
 - wind tunnel testing
 - under hood bolt on testing
- Flow visualisation
- Drilling and self tapping
- Pressure tappings
- Snap fit assemblies
- RTV mould patterns

Accura SI 40 Material

for the SLA Viper si2, 3500, 5000 and 7000 systems

Typical Properties

Liquid Material

MEASUREMENT	CONDITION	SOLID STATE Nd: YVO ₄
Appearance		Clear amber
Density	@ 25 °C	1.1 g/cm ³
Viscosity	@ 30 °C	485 cps
Penetration depth (Dp) ¹		0.168 mm (6.6 mils) *, 0.173 mm (6.8 mils) **
Critical exposure (Ec) ¹		21.7 mJ/cm ² *, 20.1 mJ/cm ² **
Tested build styles		EXACT™ FAST™ ThinLayer™ EXACTHR *

¹ Dp and Ec values are not reliable indicators on throughput as throughput is affected by overhead time, layer thickness and part geometry

* for the Viper si2 SLA system

** for the SLA 7000 system

Post-Cured Material²

MEASUREMENT	CONDITION	90-MINUTE UV	90-MINUTE UV + THERMAL	90-MINUTE UV	90-MINUTE UV + THERMAL
		SLA VIPER si2 SYSTEM		SLA 7000 SYSTEM	
Tensile strength	ASTM D 638	57.2–58.7 MPa	73.9–74.2 MPa	61.5–61.7 MPa	69.6–73.8 MPa
Elongation at break	ASTM D 638	4.8–5.1 %	4.8–5.1 %	4.9–5.1 %	4.7–6.4 %
Tensile Modulus	ASTM D 638	2628 - 3321 MPa	2906–3321 MPa	2840–3048 MPa	2909–3186 MPa
Flexural strength	ASTM D 790	93.4–96.1 MPa	116.2–118.3 MPa	92.8–97 MPa	106.7–110.1 MPa
Flexural modulus	ASTM D 790	2836–3044 MPa	3113–3182 MPa	2618–2756 MPa	2840–2909 MPa
Impact strength Notched Izod	ASTM D 256	22.5–27.2 J/m	22.5–30.9 J/m	22.3–29.9 J/m	22.3–29.9 J/m
Heat deflection temperature	ASTM D 648 @ 0.45 MPa @ 1.8 MPa	51 °C 43 °C	101 °C 82 °C	54 °C 49 °C	114 °C 89 °C
Glass transition, Tg	DMA, E''	65.6 °C	74.9 °C	62 °C	72 °C
Coefficient of thermal expansion	ASTM E 831–93 TMA (T < Tg) TMA (T > Tg)	99.6 x 10 ⁻⁶ m/m °C	60.8 x 10 ⁻⁶ m/m °C	73.5 x 10 ⁻⁶ m/m °C	67.1 x 10 ⁻⁶ m/m °C
		185 x 10 ⁻⁶ m/m °C	167 x 10 ⁻⁶ m/m °C	188 x 10 ⁻⁶ m/m °C	189 x 10 ⁻⁶ m/m °C
Hardness, Shore D	ASTM D 2240	82	84	86	86

² Mechanical properties reported are determined after conditioning of the parts at 50% RH and 23 °C for a period greater than 72 hours as specified by ASTM standards. Mechanical properties of parts without this conditioning may be different from values reported.

MATERIAL UPGRADE PROGRAMME:

Upgrade your existing material and take advantage of a substantial discount off the regular purchase price with 3D Systems Material Upgrade Programme. For UK, Ireland, Spain and Portugal please dial +44 (0) 1442 282600, for all other countries dial +49 (0) 6151 357 357.



the solid imaging company

3D Systems Europe Ltd.

Mark House
Mark Road
Hemel Hempstead, Herts.
HP2 7UA

tel +44 1442 282 600

fax +44 1442 282 601

email marketing@3dsystems.co.uk

3D Systems GmbH

Postfach 12 02 07
D-64239 Darmstadt
Germany

tel +49 61 51 / 3 57-0

fax +49 61 51 / 3 57-333

email info@3dsystems.com

www.3dsystems.com

Nasdaq: TDSC

FRANCE

tel +33 1 69 35 17 17

HONG KONG

tel +852 2923 5077

ITALY

tel +39 039 68 904 00

JAPAN

tel +81 3 5451 1690

USA

tel +1 661 295 5600 ext. 2882

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