

Stereolithography Materials

SL
DIRECT

for use on

RenShape™ SL 5530 SLA® 350/3500/5000
system

High Temperature Resistant Stereolithography Material

- High temperature resistance
- Very high throughput material
- Good water resistance
- Suitable for under-the-hood applications
- Suitable for electrical applications
- Resistant to automotive fluids

Liquid Material

MEASUREMENT	CONDITION	VALUE
Appearance		Clear Amber
Density	@ 25°C (77°F)	1.19 g/cm ³
Viscosity	@ 28°C (82°F)	270 cps
Viscosity	@ 30°C (86°F)	210 cps
Penetration depth (Dp)		5.4 mils (5.6 mils on SLA 350/3500 systems)
Critical exposure (Ec)		8.9 mJ/cm ² (9.4 mJ/cm ² on SLA 350/3500 systems)
Part building layer thickness*		0.05 mm (0.002 in) 0.10 mm (0.004 in)

*Dependent upon part geometry and build parameters.

Post-Cured Material

MEASUREMENT	CONDITION	VALUE	VALUE
		90-minute UV post-cure	90-minute UV + 2 hours @ 160° thermal post-cure
Hardness, Shore D	ASTM D 2240	88	90
Flexural modulus	ASTM D 790	2,620 - 3,240 MPa (380 - 470 KSI)	3,496 - 3,634 MPa (507 - 527 KSI)
Flexural strength	ASTM D 790	63 - 87 MPa (9,100 - 12,600 PSI)	96 - 108 MPa (13,900 - 15,700 PSI)
Tensile modulus	ASTM D 638	2,889 - 3,144 MPa (419 - 456 KSI)	3,585 - 3,758 MPa (520 - 545 KSI)
Tensile strength	ASTM D 638	57 - 61 MPa (8,300 - 8,900 PSI)	47 - 61 MPa (6,800 - 8,900 PSI)
Elongation at break	ASTM D 638	3.8 - 4.4%	1.3 - 2.9%
Impact strength, notched Izod	ASTM D 256	21 J/m (0.4 ft - lbs/in)	21 J/m (0.4 ft - lbs/in)
Heat deflection temperature	ASTM D 648 @ 66 PSI @ 264 PSI	70 - 85°C (158 - 185°F) 55 - 58°C (131 - 136°F)	170 - 250°C (338 - 482°F) 110 - 120°C (230 - 248°F)
Glass transition, Tg	DMA, E" peak	79°C (174°F)	122°C (252°F)
Coefficient of thermal expansion	TMA (T<Tg) TMA (T>Tg)	76 x 10 ⁻⁶ /°C 152 x 10 ⁻⁶ /°C	84 x 10 ⁻⁶ /°C 159 x 10 ⁻⁶ /°C
Thermal conductivity		0.173 W/m °K 4.2 x 10 ⁻⁴ cal/sec.cm.°C	
Density		1.25 g/cm ³	

Protected by one or more of the following patents: US 5,476,748; US 6,100,007; US 6,136,497; US 5,972,563

For SL Technical Support: Tel: 866-288-3554 (Toll Free), Fax: 517-324-1416. Email: slmaterials@huntsman.com

www.renshape.com

Huntsman Advanced Materials Americas Inc., 2190 Executive Hills Boulevard, Auburn Hills, MI 48326, USA. Tel: 800-285-4784 Fax: 517-351-6255

SEE IMPORTANT LEGAL INFORMATION ON PAGE 2

© RenShape is a registered trademark of Huntsman LLC or an affiliate thereof in one or more, but not all, countries.
RenShape™ SL is a trademark of Huntsman LLC or an affiliate thereof. © 2004 Huntsman Advanced Materials LLC.
© SLA is a registered trademark of 3D Systems. Publication No. T.302d US



RenShape
solutions
HUNTSMAN

IMPORTANT LEGAL NOTICE:

Sales of a referenced product ("Product") are subject to the general terms and conditions of sale of Huntsman Advanced Materials Americas Inc. ("Huntsman").

WARRANTY: Huntsman warrants to the Buyer that the Product will conform to the published specifications for that Product at the time of manufacture, and that the Product will be free from defects in material and workmanship in normal use.

DISCLAIMER AND LIMITATION OF LIABILITY: EXCEPT AS SET FORTH ABOVE, SELLER MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Huntsman cannot control Buyer's application and use of the Product and accepts no responsibility therefore. No statement or recommendation contained in any Product literature may be construed as a representation about the suitability of a Product for the particular application of Buyer or user or as an inducement to infringe any relevant patent. Buyer is responsible to ensure that its intended use of the Product does not infringe any third-party's intellectual property rights. Seller neither assumes, nor authorizes any representative or other person to assume for it, any obligation or liability other than as is expressly set forth herein. **UNDER NO CIRCUMSTANCES SHALL HUNTSMAN BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, SPECIAL OR OTHER INDIRECT DAMAGES AS A RESULT OF A BREACH OF ANY WARRANTY OR THE FAILURE OF A PRODUCT OR ANY CLAIM THAT IS ESSENTIALLY BASED UPON SUCH BREACH OR FAILURE.** Any claim by Buyer, whether arising in contract, tort, negligence, breach of warranty, strict liability, or otherwise, related to a Product shall be limited to, and the sole liability of Seller and the sole remedy of Buyer for any claims shall be for, the purchase price of the Product in respect of which such claim is made. The foregoing **DISCLAIMER** and **LIMITATION OF LIABILITY** supercedes Buyer's documents.

WARNING: Technical data and results are based upon tests under controlled laboratory conditions and must be confirmed by Buyer by testing for its intended conditions of use. The Product has not been tested for, and therefore is not recommended or suitable for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended or likely, or for uses for which implantation within the human body is intended, and Huntsman assumes no liability for any such uses.