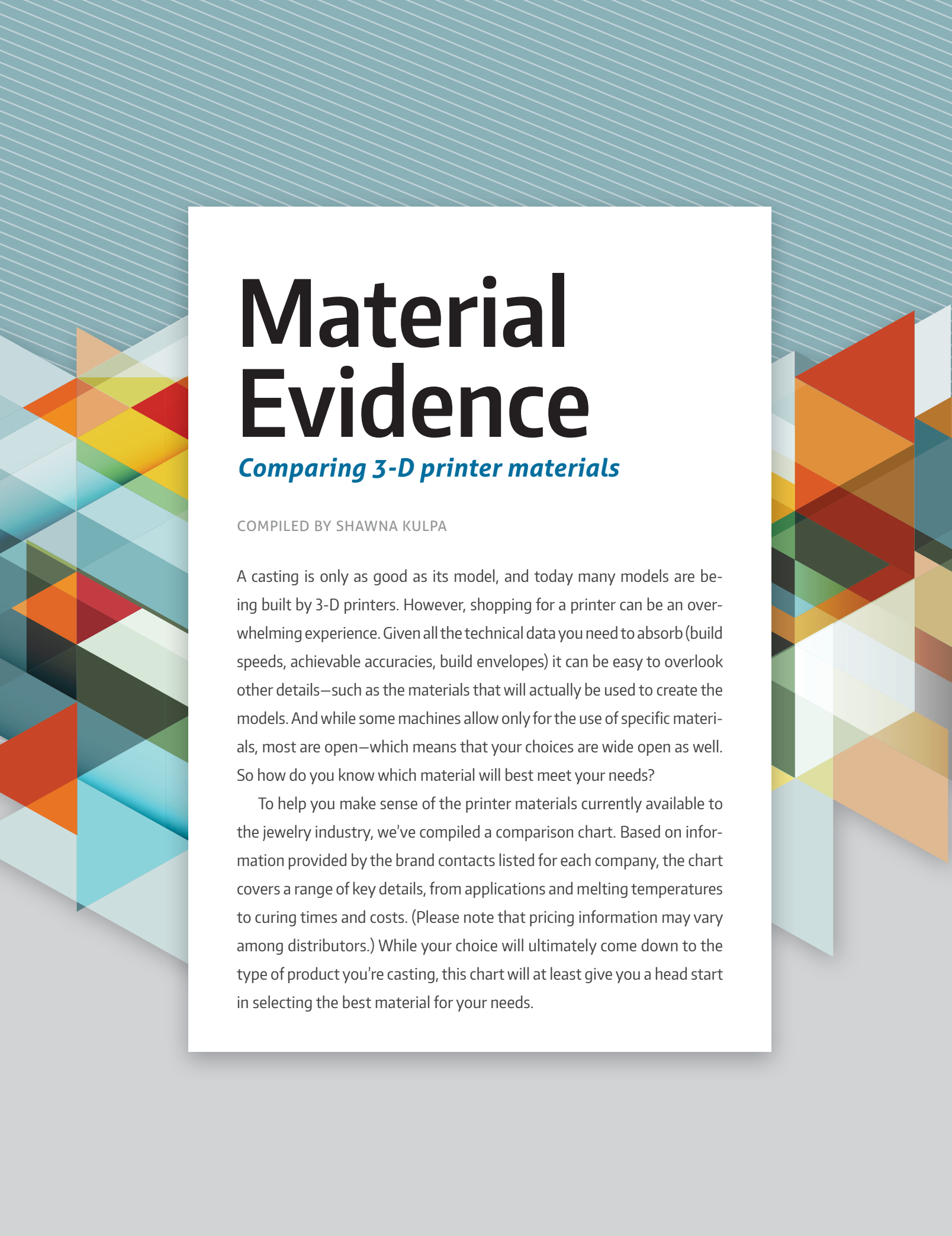




Material Evidence

Comparing 3-D printer materials

COMPILED BY SHAWNA KULPA

A casting is only as good as its model, and today many models are being built by 3-D printers. However, shopping for a printer can be an overwhelming experience. Given all the technical data you need to absorb (build speeds, achievable accuracies, build envelopes) it can be easy to overlook other details—such as the materials that will actually be used to create the models. And while some machines allow only for the use of specific materials, most are open—which means that your choices are wide open as well. So how do you know which material will best meet your needs?

To help you make sense of the printer materials currently available to the jewelry industry, we've compiled a comparison chart. Based on information provided by the brand contacts listed for each company, the chart covers a range of key details, from applications and melting temperatures to curing times and costs. (Please note that pricing information may vary among distributors.) While your choice will ultimately come down to the type of product you're casting, this chart will at least give you a head start in selecting the best material for your needs.

3-D Printer Materials

COMPARISON CHART

BRAND MANUFACTURER	3D Systems			Asiga		
RESIN NAME	M3 Cast	M3 Hi Cast	M2 Cast	SuperWAX v2	SuperCAST HD	
MATERIAL TYPE	Wax	Wax	Wax	Wax	Resin	
APPLICATION	Investment Casting Pattern	Investment Casting Pattern	Investment Casting Pattern	Investment Casting	Investment Casting	
INVESTMENT TYPE COMPATABILITY	Gypsum	Gypsum	Gypsum	Phosphate/ Gypsum	Gypsum	
MINIMUM SLICE THICKNESS (µM)	16	16	16	25	10	
MAXIMUM SLICE THICKNESS (µM)	20	20	16	100	100	
PACKAGING	Cartridge	Cartridge	Cartridge	Bottle	Bottle	
COST	\$668	\$668	\$720	\$365 p/L	\$365 p/L	
MELT/IGNITION TEMPERATURE	77°C/170°F	77°C/170°F	77°C/170°F	40°C/104°F	150°C/302°F	
COLOR	Blue	Purple	Purple	Red	Green	
CURE METHOD	None	None	None	None	Light Curing	
CURE TIME	N/A	N/A	N/A	N/A	20 minutes	
CONTACT INFORMATION	3D Systems (Manufacturer) 1-803-326-3900 3dsystems.com CADBlue (Distributor) 1-212-481-8700 cadblu.com			Asiga USA 1-877-689-9998 info@asiga.com asiga.com		

				B9Creations		
	SuperCAST v3	FusionGRAY v2	PlasGRAY v2	B9R-1-Cherry Resin	B9R-1-Red Resin	B9R-2-Black Resin
	Resin	Resin	Resin	Photopolymer	Photopolymer	Photopolymer
	Investment Casting	Mold Making	Design Verification	Investment Casting Pattern	Master Mold Model	Master Mold Model
	Gypsum	N/A	N/A	Phosphate	None	None
	10	10	10	25	70	20
	100	125	125	51	204	204
	Bottle	Bottle	Bottle	1000 ml Bottle	1000 ml Bottle	1000 ml Bottle
	\$365 p/L	\$285 p/L	\$185 p/L	\$149	\$139	\$189
	150°C/302°F	N/A	N/A	399°C/750°F	399°C/750°F	440°C/825°F
	Red	Gray	Light Gray	Red	Dark Red	Black
	Light Curing	Light Curing	Light Curing	UV Light	UV Light	UV Light
	20 minutes	20 minutes	20 minutes	4 minutes	4 minutes	4 minutes
				B9Creations 1-605-787-0652 <i>b9c.com</i>		

3-D Printer Materials

COMPARISON CHART

BRAND MANUFACTURER	B9Creations			CADBLU		
RESIN NAME	B9R-3-Emerald Resin	B9R-4-Yellow	B9R-6-Gray	Pro Cast 100	Model Grey	
MATERIAL TYPE	Photopolymer	Photopolymer	Photopolymer	Photopolymer	Photopolymer	
APPLICATION	Investment Casting Pattern	Investment Casting Pattern	Design Review	Investment Casting Pattern	Master Mold Model	
INVESTMENT TYPE	Phosphate	Phosphate	N/A	Gypsum	None	
MINIMUM SLICE THICKNESS (µM)	20	20	30	10	10	
MAXIMUM SLICE THICKNESS (µM)	90	90	110	50	50	
PACKAGING	1000 ml Bottle	1000 ml Bottle	1000 ml Bottle	500 ml Bottle	500 ml Bottle	
COST	\$179	\$199	\$169	\$169	\$129	
MELT/IGNITION TEMPERATURE	399°C/750°F	399°C/750°F	Unknown	350°C/662°F	N/A	
COLOR	Green	Yellow	Gray	Green	Gray	
CURE METHOD	UV Light	UV Light	UV Light	UV Light	UV Light	
CURE TIME	4 minutes	4 minutes	4 minutes	N/A	N/A	
CONTACT INFORMATION	B9Creations 1-605-787-0652 b9c.com			CADBlu 1-212-481-8700 cadblu.com		

DigitalWax Systems

	DC500	DC550	DC700	DM210	DM220	DL260
	Wax	Wax	Wax	Photopolymer	Photopolymer	Photopolymer
	Investment Casting Pattern	Investment Casting Pattern	Investment Casting Pattern	Master Mold Model	Master Mold Model	Design Review
	Gypsum	Gypsum	Gypsum	None	None	None
	10	10	10	10	10	10
	50	50	50	50	50	50
	500 ml Bottle	500 ml Bottle	500 ml Bottle	500 ml Bottle	500 ml Bottle	500 ml Bottle
	\$325	\$408	\$353	\$408	\$428.50	\$412.50
	371°C-482°C/ 700-900°F	371°C-482°C/ 700-900°F	371°C-482°C/ 700-900°F	N/A	N/A	N/A
	White	Green	Blue	Blue	White	Gray
	UV Light	UV Light	UV Light	UV Light	UV Light	UV Light
	40 minutes	40 minutes	40 minutes	40 minutes	40 minutes	40 minutes
	DigitalWax Systems (Manufacturer) 39-0445-810-810 info@dwssystems.com dwssystems.com Rio Grande (Distributor) 1-800-545-6566 info@riogrande.com riogrande.com					

3-D Printer Materials COMPARISON CHART

BRAND MANUFACTURER	EnvisionTEC						
RESIN NAME	PIC-100	EC-500	EPIC	PEC 50-50	EC3000	HTM140V2	
MATERIAL TYPE	Photopolymer	Photopolymer + Wax	Photopolymer + Wax	Photopolymer + Wax	Photopolymer + Wax	Photopolymer	
APPLICATION	Investment Casting Pattern	Investment Casting Pattern	Investment Casting Pattern	Investment Casting Pattern	Investment Casting Pattern	Master Mold Model	
INVESTMENT TYPE	Phosphate/ Gypsum	Phosphate/ Gypsum	Phosphate/ Gypsum	Phosphate/ Gypsum	Phosphate/ Gypsum	N/A	
MINIMUM SLICE THICKNESS (μM)	25	25	25	25	35	25	
MAXIMUM SLICE THICKNESS (μM)	50	50	50	50	50	50	
PACKAGING	1000 ml Bottle	1000 ml Bottle	1000 ml Bottle	1000 ml Bottle	1000 ml Bottle	1000 ml Bottle	
COST	\$429	\$489	\$499	\$450	\$595	\$450	
MELT/IGNITION TEMPERATURE	305°C/581°F	275°C/527°F	N/A	N/A	259°C/498°F	N/A	
COLOR	Yellow	Yellow	Green	Yellow	Green	Green	
CURE METHOD	UV Light	UV Light	UV Light	UV Light	UV Light	UV Light	
CURE TIME	45 minutes	45 minutes	45 minutes	N/A	16 minutes	4 minutes	
CONTACT INFORMATION	EnvisionTEC 1-313-436-4300 northamerica@envisiontec.com envisiontec.com						

				Formlabs			
	Q-View	Easy Cast 2.0 C	LED RC90	Castable Resin	High Temp Resin	Grey Resin	Grey Resin
	Photopolymer	Photopolymer + Wax	Photopolymer + Ceramic	Photopolymer	Photopolymer	Photopolymer	Photopolymer
	Design Review	Investment Casting Pattern	Master Mold Model	Investment Casting Pattern	Master Mold Model	Master Mold Model	Design Review
	N/A	Phosphate/ Gypsum	N/A	Gypsum	Unknown	Unknown	Unknown
	50	25	25	25	25	25	25
	50	50	50	100	100	100	100
	1000 ml Bottle	500 ml Bottle	1000 ml Bottle	1000 ml Bottle	1000 ml Bottle	1000 ml Bottle	1000 ml Bottle
	\$450	\$350	\$450	\$299	\$199	\$149	\$149
	N/A	263°C/505°F	N/A	Unknown	Unknown	Unknown	Unknown
	Gray	Yellow	Tan	Blue	Amber	Gray	Gray
	UV Light	UV Light	UV Light	Light and heat	Light and heat	Light and heat	Light and heat
	2 minutes	63 minutes	14 minutes	120 minutes	60 minutes	60 minutes	0
				Formlabs 1-617-932-5227 hello@formlabs.com formlabs.com			

3-D Printer Materials COMPARISON CHART

BRAND MANUFACTURER	Proto Products	Solidscape
RESIN NAME	ProtoCast	Midas
MATERIAL TYPE	Photopolymer	Thermoplastic
APPLICATION	Investment Casting Pattern	Investment Casting Pattern
INVESTMENT TYPE	Gypsum	All
MINIMUM SLICE THICKNESS (μM)	5	6
MAXIMUM SLICE THICKNESS (μM)	50	76
PACKAGING	1000 ml Bottle	Sticks
COST	\$350	\$200
MELT/IGNITION TEMPERATURE	300-400°C/572-752°F	116°C/240°F
COLOR	Red	Blue
CURE METHOD	UV Light	None
CURE TIME	30 minutes	N/A
CONTACT INFORMATION	Proto Products 1-844-937-7686 info@protoproducts.com protoproducts.com	Solidscape Inc. 1-603-429-9700 solidscape.com ♦