

CASTFORM™ PS

MATERIAL FOR SLS® SYSTEMS

Technology:	Selective Laser Sintering, SLS
Material Class:	Powder; Thermoplastic

Produce complex investment casting patterns — without tooling — on your SLS® system

CastForm PS material allows you to quickly create complex investment casting patterns in your SLS system. It's faster, more convenient, and more versatile than the traditional tooling process — and it gives you the flexibility to make more modifications in less time.

Count on foundry-wax performance, plus. Patterns created with CastForm PS material are low density (45% dense); you infiltrate them with foundry wax to create a pattern that's easy to handle and finish. CastForm material patterns require few modifications to standard foundry practices, and remove quickly and easily. Plus they're compatible with autoclaves, low-temperature furnaces, and vacuum plaster casting methods.

CastForm material's low ash content (<0.02%) makes it ideal for patterns for casting reactive metals such as titanium; it has also been used successfully with low melt-temperature metals such as aluminum, magnesium, and zinc.



Cylinder Head Cover
Courtesy of Kegelmann

Use CastForm material for:

- Complex investment casting patterns
- Casting with reactive and low-melt temperature metals

Benefits

- From CAD file to pattern — no tooling or machining required
- Quick and easy pattern removal
- Low density
- Compatible with standard foundry practices
- Low ash content



CastForm PS Material Typical Properties for the SLS systems



Powder Properties	UNITS	TEST METHOD	INFILTRATED (1)
Density Tap	g/cm ³	ASTM D4164	0.46
Particle Size Average (2) d ₅₀	μm	Laser Diffraction	62
Particle Size Range (2) 90%	μm	Laser Diffraction	25-106
Specific Gravity 20°C		ASTM D792	0.86
Moisture Absorption, 20°C, 65% R.H.	%	ASTM D570	0.06
Ash content	%	ASTM D482	0.02

Thermal Properties	UNITS	TEST METHOD	INFILTRATED (1)
Glass Transition: Tg Polystyrene	°C	ASTM D3418	89
Melting Point: Mp Wax	°C		<63
DTUL, 0.45 MPa	°C	ASTM D648	33
DTUL, 1.82 MPa	°C	ASTM D648	40
Flash Point Polystyrene	°C	Cleveland Open Cup	350
Flash Point Wax	°C	Cleveland Open Cup	>200
Autoignition Point Polystyrene	°C		410

Mechanical Properties	UNITS	TEST METHOD	INFILTRATED (1)
Tensile Strength	kPa	ASTM D638	2840
Tensile Modulus	MPa	ASTM D638	1604
Impact Strength Notched Izod	J/m	ASTM D256	<11
Unnotched Izod	J/m	ASTM D256	14

Surface Finish	UNITS	TEST METHOD	INFILTRATED (1)
Upper Facing As Processed (R _a)	μm	Internal (3)	13
After Polishing (R _a)	μm	Internal (3)	3

(1) Data was generated from the testing of SLS parts produced with the CastForm PS material under typical processing conditions and wax infiltrated with the J. Mac Red Dip Wax #2-D504.

(2) Results are based upon volume distribution of particles.

(3) Upward surface as measured using a Mitutoyo SurfTest-402.

Expected shelf life of this material is at least twelve months, when stored in dry conditions at ambient temperatures.

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