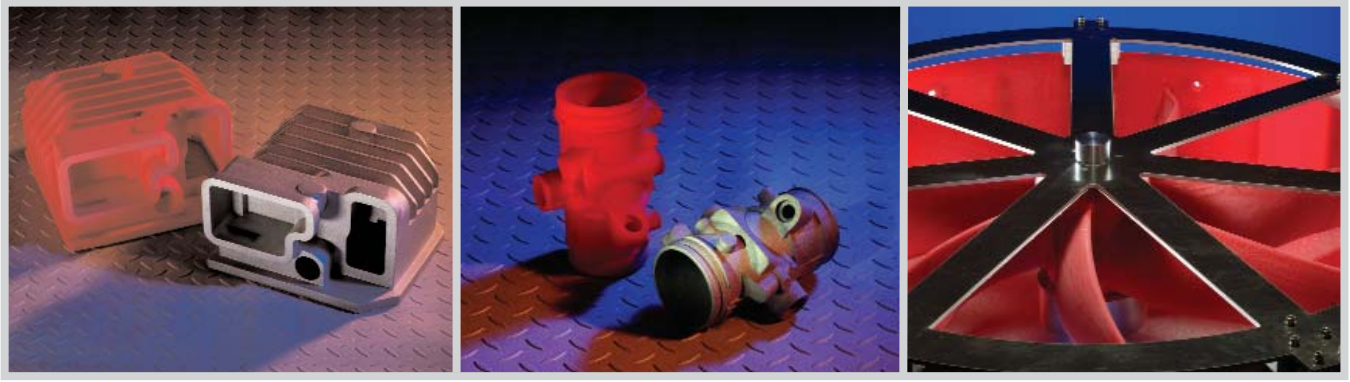
CastForm™ PS material

for use with all selective laser sintering (SLS®) systems

Produce complex investment casting patterns without tooling - on your SLS system.



Left - cylinder head cover courtesy of Kegelmann

APPLICATIONS

- 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 allows you to quickly create complex investment casting patterns in your SLS system. It is 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 aluminium, magnesium, and zinc.

CastForm® PS material

For use with all selective laser sintering (SLS®) systems

TECHNICAL DATA

Powder Properties

PROPERTIES	TEST METHOD	VALUE (1)
Density - Tap	ASTM D4164	0.46 g/cm^3
Particle Size Average (2) - d_{50}	Laser Diffraction	62 μm
Particle Size Range (2) - 90%	Laser Diffraction	25-106 μm
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

PROPERTIES	TEST METHOD	VALUE (1)
Glass Transition (Tg) - Polystyrene	ASTM D3418	89 °C (192 °F)
Melting Point (Mp) - Wax		<63 °C (<145 °F)
DTUL	ASTM D648 @33 °C @40 °C	 0.45 MPa (65.2 PSI) 1.82 MPa (264 PSI)
Flash Point - Polystyrene	Cleveland Open Cup	350 °C (662 °F)
Flash Point - Wax	Cleveland Open Cup	>200 °C (>392 °F)
Autoignition Point - Polystyrene		410 °C (770 °F)

Mechanical Properties

PROPERTIES	TEST METHOD	VALUE (1)
Tensile Strength	ASTM D638	2840 KPa
Tensile Modulus	ASTM D638	1604 MPa (232.6 PSI)
Impact Strength - Notched Izod	ASTM D256	<11 J/m (<0.2 ft- lb/in)
Impact Strength - Unnotched Izod	ASTM D256	14 J/m (0.26 ft- lb/in)

Surface Finish

PROPERTIES	TEST METHOD	VALUE (1)
Upper Facing - As Processed (R_a)	Internal(3)	13 μm
After Polishing (R_a)	Internal(3)	3 μm

(1) Data was generated from the testing of parts produced with an SLS system and CastForm PS material under typical processing conditions and wax infiltrated with 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.

3D Systems Europe Ltd.
Mark House, Mark Road
Hemel Hempstead
Herts HP2 7UA - UK
www.3dsystems.com

Tel: (+44) 1442 282 600
Fax: (+44) 1442 282 601
marketing.uk@3dsystems.com
Nasdaq: TDSC

3D Systems GmbH
Postfach 12 02 07
D-64239 Darmstadt
Germany

Tel: (+49) 6151 357 0
Fax: (+49) 6151 357 333
info@3dsystems-europe.com

SYSTEMS

TRANSFORM YOUR PRODUCTS

PN 70458 Issue Date - 21 Sept 06