

# CastForm™ PS

Specialty Polystyrene

3D Systems

## Message:

A styrene-based, expendable pattern casting material, compatible with most standard foundry processes.

### Applications

Create patterns directly rather than through indirect methods

Complex investment casting patterns

Reactive metals like titanium

Low melt-temperature metals such as aluminum, magnesium and zinc

Ferrous and non-ferrous metals

Economic, low-volume production castings without tooling

Smaller parts can be joined to create very large patterns

Sacrificial, expendable patterns

### Features

Functions like foundry wax and is "foundry friendly"

Low residual ash content (less than 0.02%)

Short burnout cycle

Easy-to-process plastic

Good plastic powder recycle characteristics

### Benefits

Create complex patterns without welds or joints

Reduce lead times resulting in faster time-to-market

Compatible with autoclaves, low-temperature furnaces, and vacuum plaster casting methods

Easy to assemble and repair patterns

Rapidly test new designs in iterative process

General Information			
Features	Clean/High Purity		
	Good Processability		
Uses	Mold Making		
	Molds/Dies/Tools		
	Patterns		
	Prototyping		
Processing Method	3D Printing, Laser Sintering/Melting		
Physical	Nominal Value	Unit	Test Method
Specific Gravity			
-- 1	0.860	g/cm <sup>3</sup>	ASTM D792
-- 2	0.460	g/cm <sup>3</sup>	ASTM D4164
Water Absorption (Equilibrium, 20°C, 65% RH)	0.060	%	ASTM D570
Ash Content	0.020	%	ASTM D482
Flash Point - Cleveland Open Cup			
-- 3	350	°C	
-- 4	> 200	°C	

Auto-ignition <sup>5</sup>	410	°C	
Upward Surface <sup>6</sup>			
After Polishing	3.0	μm	
As Processed	13.0	μm	
<b>Mechanical</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Tensile Modulus	1600	MPa	ASTM D638
Tensile Strength (Ultimate)	2.84	MPa	ASTM D638
<b>Impact</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Notched Izod Impact	< 11	J/m	ASTM D256
Unnotched Izod Impact	14	J/m	ASTM D256
<b>Thermal</b>	<b>Nominal Value</b>	<b>Unit</b>	<b>Test Method</b>
Glass Transition Temperature	89.0	°C	ASTM D3418
Melting Temperature <sup>7</sup>	> 63.0	°C	
<b>NOTE</b>			
1.	20°C		
2.	Tap		
3.	Polystyrene		
4.	Wax		
5.	Polystyrene		
6.	Mitutoyo Surftest-402		
7.	Wax		

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