

## Hoch-Temperaturbeständige Teile und Werkzeugeinsätze für Prototypen-Werkzeuge aus Somos® PerFORM

Das neue Stereolithografie-Harz PerFORM eröffnet eine Fülle von neuen Herstellungsmöglichkeiten! Zum ersten Mal können Stereolithografie-Teile mit hervorragenden thermischen (Temperaturen bis 260°C) und mechanischen Eigenschaften wie z. B. einem Biegemodul von 10.000 Mpa (zum Vergleich: PA6GF30 ca. 8.000 Mpa) hergestellt werden. Der verfügbare Bauraum liegt bei 350x350x400 mm. Durch die zusätzlich hohe Detailgenauigkeit sowie einer hochwertigen Oberflächenqualität werden zudem die unterschiedlichsten Bereiche abgedeckt:

- Versuche unter hohen Temperaturen (z. B. Motorraum)
- Abdeckungen elektrischer Komponenten
- Herstellung von Werkzeugeinsätzen für den Prototypen-Spritzguss innerhalb 1 Woche

Vor allem der letzte Punkt stellt eine interessante Alternative zu gefrästen Werkzeugeinsätzen dar. Aufgrund der hohen Festigkeit können aus den stereolithografisch belichteten Einsätzen Teile aus den gängigen Thermoplasten gespritzt werden. Ideal für kleinere Bauteile und Stückzahlen bis zu 40 Teilen, abhängig von Geometrie und Material.

Das entsprechende Materialdatenblatt sowie die Herstellerinformationen finden Sie anbei!

Wir freuen uns auf Ihre Anfrage!



Werkzeugeinsatz aus PerFORM (Bild oben)



Eingespannter Werkzeugeinsatz auf der Spritzgussmaschine (Bild rechts)



## Product Data Sheet

# Somos<sup>®</sup> PerFORM

### Description

Somos<sup>®</sup> PerFORM produces strong, stiff, high-temperature resistant composite parts on standard 355 nm stereolithography machines. This material's lower viscosity makes processing parts faster. It exhibits superior sidewall quality, along with excellent detail resolution compared to other composite stereolithography materials.

### Applications

Somos<sup>®</sup> PerFORM is an easy to process material with excellent detail resolution. It is the ideal material for creating strong, stiff parts with excellent high heat resistance, including wind tunnel models for aerospace and automotive applications, as well as rapid tooling for injection molding.

TECHNICAL DATA – LIQUID PROPERTIES	
Appearance	Off-White
Viscosity	~1,000 cps @ 30°C
Density	~1.61 g/cm <sup>3</sup> @ 25°C

TECHNICAL DATA – OPTICAL PROPERTIES		
E <sub>c</sub>	7.8 mJ/cm <sup>2</sup>	[critical exposure]
D <sub>p</sub>	4.3 mils	[slope of cure-depth vs. ln (E) curve]
E <sub>10</sub>	80 mJ/cm <sup>2</sup>	[exposure that gives 0.254 mm (.010 inch) thickness]

TECHNICAL DATA*			
Mechanical and Thermal/Electrical Properties		Somos® PerFORM UV Postcure	
ASTM Method	Property Description	Metric	Imperial
D638-10	Tensile Strength	~68 MPa	9.9 ksi
D638-10	Tensile Modulus	~10,500 MPa	1,520 ksi
D638-10	Elongation at Break	~1.1%	~1.1%
D790-10	Flexural Strength	~120 MPa	16.5 ksi
D790-10	Flexural Modulus	~10,000 MPa	1,340 ksi
D256-10	Izod Impact (Notched)	17 J/m	0.32 ft-lb/in
D2240-05	Hardness (Shore D)	94	94
D570-98	Water Absorption	0.2%	0.2%
E831-12	C.T.E. -40 – 0°C (-40 - 32°F)	29.9 µm/m°C	16.6 µin/in°F
E831-12	C.T.E. 0 – 50°C (32 - 122°F)	49.4 µm/m°C	27.4 µin/in°F
E831-12	C.T.E. 50 – 100°C (122 - 212°F)	79.1 µm/m°C	43.9 µin/in°F
E831-12	C.T.E. 100 – 150°C (212 - 302°F)	80.9 µm/m°C	44.9 µin/in°F
D150-11	Dielectric Constant 60 Hz	4.0	4.0
D150-11	Dielectric Constant 1 KHz	3.8	3.8
D150-11	Dielectric Constant 1 MHz	3.6	3.6
D149-09	Dielectric Strength	26.3 kV/mm	668 V/mil

\*Typical performance properties. Results are dependent upon processing.

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# Somos<sup>®</sup> PerFORM Get on the fast track

Somos<sup>®</sup> PerFORM takes your project to new levels of performance.

When your project calls for parts that require thermal stability, extreme accuracy and a quick turnaround, turn to our latest composite material — Somos<sup>®</sup> PerFORM. Available for both 355 and 365 nm photopolymer-based machines, parts made with this material exhibit superior sidewall quality, along with excellent detail resolution.

In addition, Somos<sup>®</sup> PerFORM is exceptional for parts that are designed for wind tunnel testing and unique applications in rapid tooling.

- ⊕ Excellent detail resolution
- ⊕ Faster, easier processing & finishing
- ⊕ Superior high heat tolerance
- ⊕ Expanded applications

### Ideal for a variety of applications

With its excellent high heat tolerance, outstanding detail resolution and stiffness, Somos<sup>®</sup> PerFORM is the ideal material for applications including:

- Tooling
- Wind Tunnel Testing
- High Temperature Testing
- Electrical Casings
- Automotive Housings



## Solutions for many industries

Regardless of what industry you're in, new product developers rely on high-performance prototypes to test their design concepts. As a world leader in stereolithography material innovation, Somos® Materials has a solution for just about any industry and application. Somos® PerFORM delivers high performance parts perfect for:



Aerospace



Automotive



Consumer Goods



Design



Industrial



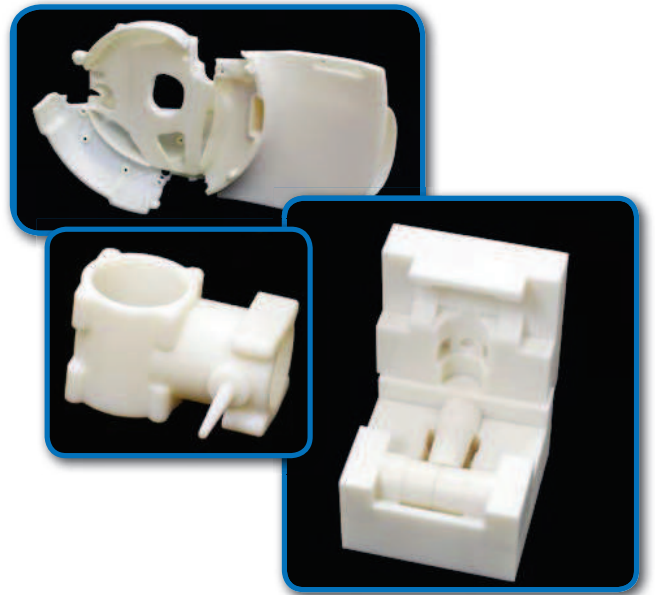
Motorsports

## Why Somos® Materials?

DSM believes that 3D printing is a major change agent for the world creating brighter lives for people today and generations to come. Somos® Materials move the 3D Printing industry to a new level of performance. We are dedicated to customer growth in the ever-changing world of 3D Printing and promote this growth through continuous material and application development, encouraging industry collaboration and maximizing customer asset value by providing continuous information and support.

Since the late 1980s, DSM's Somos® Materials has earned a global reputation for stereolithography material innovation, a distinct and unique subset of 3D Printing. Prototypes made from Somos® resins closely replicate the functionality of engineered thermoplastics, but are delivered with increased speed and accuracy.

We are continually advancing the performance benefits of our extensive line of Somos® materials. You are sure to find a solution for just about any stereolithography application.



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