

Somos[®] PerFORM Reflect



In motorsports – as in automotive, rail and aerospace - speed is key. Getting ready for a race, from design to the track you need to be the fastest. Printing your wind tunnel models with Somos[®] PerFORM Reflect saves more than 30% post treatment. So, you can get your aerodynamic designs onto your vehicle faster - and be more competitive on the track, road, rail or air.

In Formula One, typically a car body is printed at 60% of its normal size for simulation purposes and checked with particle imaging velocimetry (PIV) in critical areas. Somos[®] PerFORM Reflect is a new and unique DSM stereolithography material developed specifically for 3D printing parts for wind tunnel testing with PIV. With this innovation DSM again sets a standard in enabling faster aerodynamic design optimizations - in motorsports and beyond.

Somos[®] PerFORM Reflect produces strong, stiff, high-temperature resistant composite parts that are ideal for wind tunnel testing. Extensive tests show that the new Somos[®] PerFORM Reflect reduces post-processing by more than 30% as it eliminates the need for additional PIV coatings. This translates into faster data collection, decreasing overall lead time per design iteration and allowing customers to conduct iterations faster.

Somos[®] PerFORM Reflect utilizes patented new technology that allows for reducing and even eliminating much of the finishing work required with traditional materials. Based on DSM's industry standard Somos[®] PerFORM, the new resin demonstrates all the performance attributes that customers rely on such as low viscosity, low settling, fast processing and high stiffness and heat resistance.



Key Benefits

- Ready-to-use material for PIV wind tunnel testing
- Faster image processing, higher accuracy wind tunnel models
- >30% reduction in post-processing time
- Excellent detail resolution
- Improved surface quality, faster part finishing
- Superior high heat properties

Applications

- Wind tunnel testing for aerodynamic design optimization
- High-temperature testing
- Electrical casings
- Automotive housings
- Tooling



Motorsports engine cover vent printed in Somos[®] PerFORM Reflect

Technical Data

Liquid Properties		Optical Properties		
Appearance	Orange	E_c	8.4 mJ/cm ²	[critical exposure]
Viscosity	~1100cP @ 30°C	D_p	4.15 mil	[slope of cue-depth vs ln (E)curve]
Density	~1.61 g/cm ³ @ 25°C	E_{10}	93.4 mJ/cm ²	[exposure that gives 0.254 mm (.010 inch) thickness]

Mechanical Properties		UV Postcure		Thermal Postcure	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
D638-14	Tensile Strength	63.3 MPa	9180	72.4 MPa	10500 psi
D638-14	Tensile Modulus	10135 MPa	1470 ks	9653 MPa	1400 ksi
D638-14	Elongation at Break	0,79%		0,96%	
D638-14	Poisson's Ratio	0,318		0,315	
D790-15e2	Flexural Strength	119 MPa	17300 psi	130 MPa	18800 psi
D790-15e2	Flexural Modulus	8273 MPa	1200 ksi	7722 MPa	1120 ksi
D256-10e1	Izod Impact (Notched)	16.9 J/m	0.316 ft-lbf/in	20.0 J/m	0.375 ft-lbf/in
D2240-15	Hardness (Shore D)	92		94	
D570-98	Water Absorption	0,19%		0,14%	

Thermal/Electric Properties		UV Postcure		Thermal Postcure	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
E831-14	C.T.E. -40 - 0°C (-40 - 32°F)	26.3 µm/m°C	14.6 µin/in°F	25.7 µm/m°C	14.3 µin/in°F
E831-14	C.T.E. 0 - 50°C (32 - 122°F)	35.8 µm/m°C	19.9 µin/in°F	31.5 µm/m°C	17.5 µin/in°F
E831-14	C.T.E. 50 - 100°C (122 - 212°F)	88.3 µm/m°C	49.1 µin/in°F	50.5 µm/m°C	28.1 µin/in°F
E831-14	C.T.E. 100 - 150°C (212 - 302°F)	85.8 µm/m°C	47.7 µin/in°F	87.4 µm/m°C	48.5 µin/in°F
D150-18	Dielectric Constant 60 Hz	4,22		4,22	
D150-18	Dielectric Constant 1 kHz	3,96		3,92	
D150-18	Dielectric Constant 1 MHz	3,67		3,65	
D149-09	Dielectric Strength	6.6 kV/mm	675 V/mil	27.5 kV/mm	699 V/mil
E1545-11	Tg via DMA (E")	70°C	158°F	94°C	201°F
D648-16	HDT @ 0.46 MPa (66 psi)	94.0°C	201°F	276°C	529°F
D150-18	HDT @ 1.81 MPa (264 psi)	76.5°C	170°F	122°C	252°F

More information

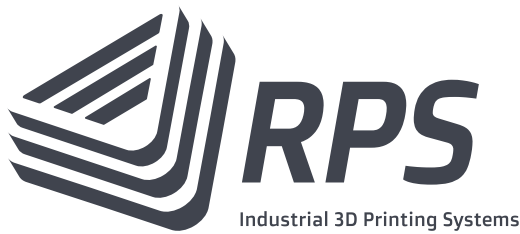
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About RPS

RPS has been in operation over ten years and our engineers collectively have decades of experience working with stereolithography and laser sintering equipment. With proven experience in 3D printing, engineering, electronics, computer-aided engineering and more, we understand the technology and can offer advice on how it can suit your specific application.

We manufacture the **NEO800** stereolithography system, designed, developed and built by RPS engineers. We are also an HP Channel Partner of HP's Multi-Jet Fusion technology and offer a range of materials and software through our partnership with market-leading suppliers ALM, DSM Somos® and Materialise.

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