Somos® PerFORM

A fast processing stereolithography material resulting in strong, stiff and accurate parts with high feature resolution

Product Description

Somos® PerFORM produces strong, stiff, high temperature resistant composite parts that are ideal for tooling and wind tunnel testing applications.

With the lowest viscosity of any composite stereolithography material, parts made from Somos® PerFORM are faster to build, easier to post-process clean, possess superior sidewall quality and provide unmatched 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.

Expanded application opportunites for TMG

Somos® PerFORM has allowed Toyota Motorsport GmbH to break into a new area of business for the industry. Through the use of Somos® PerFORM, TMG is now able to produce tooling for injection molding. Combining the cost efficiency and fast production times of traditional additive manufacturing with the accuracy and high definition required in the injection molding industry has been made possible through the innovative characteristics of Somos® PerFORM.

Key Benefits

- Excellent detail resolution
- Fast, easy processing & finishing
- Superior high heat tolerance

Ideal Applications

- Tooling
- Wind tunnel testing
- High temperature testing
- Electrical casings
- Automotive housings

Somos® PerFORM Technical Data

Liquid Properties		**Optical Properties**		
Appearance	Off-White	E_C	7.8 mJ/cm²	[critical exposure]
Viscosity	~1,000 cps @ 30°C	D_P	4.3 mils	[slope of cure-depth vs. In (E) curve]
Density	~1.61 g/cm³ @ 25°C	E_{10}	80 mJ/cm²	[exposure that gives 0.254 mm (.010 inch) thickness]

Mechanical Properties		**UV Postcure**		**Thermal Postcure**	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
D638M	Tensile Strength	68 MPa	9.9 ksi	80 MPa	11.6 ksi
D638M	Tensile Modulus	10,500 MPa	1,520 ksi	9,800 MPa	1,420 ksi
D638M	Elongation at Break	1.1%		1.2%	
D638M	Poisson's Ratio	0.32		0.33	
D790M	Flexural Strength	120 MPa	17.4 ksi	146 MPa	21.2 ksi
D790M	Flexural Modulus	10,000 MPa	1,450 ksi	9,030MPa	1,310 ksi
D256A	Izod Impact (Notched)	17 J/m	0.32 ft-lb/in	20 J/m	0.37 ft-lb/in
D2240	Hardness (Shore D)	94		93	
D570-98	Water Absorption	0.2%		0.1%	
Thermal/Electrical Properties		**UV Postcure**		**Thermal Postcure**	
ASTM Method	Property Description	Metric	Imperial	Metric	Imperial
E831-05	C.T.E. -40 - 0°C (-40 - 32°F)	29.9 µm/m°C	16.6 µin/in°F	26.4 µm/m°C	14.7 µin/in°F
E831-05	C.T.E. 0 - 50°C (32 - 122°F)	49.4 µm/m°C	27.4 µin/in°F	34.3 µm/m°C	19.1 µin/in°F
E831-05	C.T.E. 50 - 100°C (122 - 212°F)	79.1 µm/m°C	43.9 µin/in°F	59.9 µm/m°C	33.3 µin/in°F
E831-05	C.T.E. 100 - 150°C (212 - 302°F)	80.9 µm/m°C	45.0 µin/in°F	94.7 µm/m°C	52.6 µin/in°F
D150-98	Dielectric Constant 60 Hz	4.0		4.0	
D150-98	Dielectric Constant 1 KHz	3.8		3.9	
D150-98	Dielectric Constant 1 MHz	3.6		3.7	
D149-97A	Dielectric Strength	26.3 kV/mm	668 V/mil	25.4 kV/mm	644 V/mil
E1545-11	Tg	72°C	162°F	81°C	178°F
D648	HDT @ 0.46 MPa (66 psi)	132°C	270°F	268°C	514°F
D648	HDT @ 1.81 MPa (264 psi)	82°C	180°F	119°C	246°F

These values may vary and depend on individual machine processing and post-curing practices.

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