Somos® Element

A stereolithography material engineered to create flawless investment castings

Product Description

Through continuous interaction with our customers, pattern makers and foundries, Somos® developed the groundbreaking stereolithography resin Somos® Element — the new standard for producing Investment Casting patterns.

Somos® Element is an antimony-free stereolithography material that has been specifically designed to improve the repeatability and quality of 3D printed casting patterns. Patterns created with Somos® Element leave trace amounts of lightweight, easily-removable ash residue after burnout and have good green strength, so there's no worry of breakage during handling, while being dimensionally stable during storage. Any residue that is left behind is easily removed, leaving a perfectly clean void in the ceramic mold. This translates into lower mold prep times and lower rates of rework, saving customers time and money.

Ash is easily blown away with Somos® Element

Key Benefits

- Trace amounts of ash that are lightweight and easily removed
- Suitable for high-end alloy castings
- Rapid draining
- Produces accurate, repeatable parts regardless of size

Somos® Element Technical Data

Liquid Properties		Optical Properties		
Appearance	Clear	E_C	10 mJ/cm²	[critical exposure]
Viscosity	~125 cps @ 30°C	D_P	5,2 mils	[slope of cure-depth vs. In (E) curve]
Density	1,11 g/cm³ @ 25°C	E_{10}	68,4 mJ/cm²	[exposure that gives 0.254 mm (.010 inch) thickness]

Mechanical Properties		UV Postcure	
ASTM Method	Property Description	Metric	Imperial
D638-14	Tensile Modulus	3.170 MPa	460 ksi
D638-14	Tensile Strength at Break	53 MPa	7,7 ksi
D638-14	Elongation at Break	2,3%	
D570-98	Water Absorption	0,36%	
D790-15e2	Flexural Strength	114 MPa	16,6 ksi
D790-15e2	Flexural Modulus	3.230 MPa	468 ksi
D256-10e1	Izod Impact (Notched)	22 J/m	0,41 ft-lb/in
D2240-05	Durometer Hardness	86	
Thermal/Electrical Properties		**UV Postcure**	
ASTM Method	Property Description	Metric	Imperial
E831-13	C.T.E. -40 - 0°C (-40 - 32°F)	56,8 µm/m°C	31,5 µin/in°F
E831-13	C.T.E. 0 - 50°C (32 - 122°F)	75,7 µm/m°C	42,1 µin/in°F
E831-13	C.T.E. 50 - 100°C (122 - 212°F)	137 µm/m°C	76,1 µin/in°F
E831-13	C.T.E. 100 - 150°C (212 - 302°F)	142 µm/m°C	78,9 µin/in°F
D150-11	Dielectric Constant 60 Hz	3,7	
D150-11	Dielectric Constant 1 KHz	3,6	
D150-11	Dielectric Constant 1 MHz	3,4	
D149-09	Dielectric Strength	18,3 kV/mm	465 V/mil
E1545-11	Tg	58°C	136°F
D648-16	HDT @ 0,46 MPa (66 psi)	58°C	136°F
D648-16	HDT @ 1,81 MPa (264 psi)	53°C	127°F
Burnout Properties			
Method	Property Description		
ICP	Antimony Content	Not detectable (<3 ppm)	
TGA	Ash Content	<0,005 %	

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

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