



## Somos<sup>®</sup> Element<sup>™</sup>

Stereolithography

## A stereolithography material engineered to create flawless investment castings patterns.

Through continuous interaction with our customers, pattern makers and foundries, our team developed Somos® Element 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 better 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.



## **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

LIQUID PROPERTIES		OPTICAL PROPERTIES		
Appearance	Clear	Ec	10 mJ/cm <sup>2</sup>	[critical exposure]
Viscosity	~125 cps @ 30°C	D <sub>P</sub>	5.2 mils	[slope of cue-depth vs. In (E) curve]
Density	1.11 g/cm³ @ 25°C	E <sub>10</sub>	68.4 mJ/cm <sup>2</sup>	[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	2.5	3%	
D570-98	Water Absorption	0.3	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	8	36	

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THERMAL/ELECTRICAL PROPERTIES		UV POSTCURE	
ASTM Method	Property Description	Metric	Imperial
E831-13	C.T.E40-0°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	9.7
D150-11	Dielectric Constant 1 KHz	3	8.6
D150-11	Dielectric Constant 1 MHz	3	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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