The Design to Manufacturing Co.

MATERIAL
ELEMENT
OVERVIEW

For more information or advice: theD2Mco.com/contact-us info@theD2Mco.com

Somos® Element™

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	E_C	10 mJ/cm²	[critical exposure]
Viscosity	~125 cps @ 30°C	D_P	5.2 mils	[slope of cue-depth vs. ln (E) curve]
Density	1.11 g/cm³ @ 25°C	E_{10}	68.4 mJ/cm²	[exposure that gives 0.254 mm (.010 inch) thickness]

Data Sheet

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.