

# 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.

## 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



Ash is easily blown away with Somos® Element

# Somos® Element Technical Data

Liquid Properties		Optical Properties		
Appearance	Clear	$E_c$	10 mJ/cm <sup>2</sup>	[critical exposure]
Viscosity	~125 cps @ 30°C	$D_p$	5.2 mils	[slope of cure-depth vs. ln (E) curve]
Density	1.11 g/cm <sup>3</sup> @ 25°C	$E_{10}$	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	2.3%	
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	T <sub>g</sub>	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.

## DSM Functional Materials Somos® Material Group

### North America

1122 St. Charles Street  
Elgin, Illinois 60120  
USA  
Phone: +1.847.697.0400

### Europe

Slachthuisweg 30  
3151 XN Hoek van Holland  
The Netherlands  
Phone: +31.174.315.391

### China

476 Li Bing Road  
Zhangjiang Hi-Tech Park  
Pudong New Area  
Shanghai 201203, China  
Phone: +86.21.6141.8064

NOTICE : Somos® is a registered trademark of Royal DSM N.V. Somos® is an unincorporated subsidiary of DSM Desotech Inc. The information presented herein is based on generally accepted analytical and testing practices and is believed to be accurate. However, DSM Desotech expressly disclaims any product warranties which may be implied including warranties of merchantability and/or fitness for a particular purpose. DSM Desotech's products are sold subject to DSM Desotech's standard terms and conditions of sale, copies of which are available upon request. Purchasers are responsible for determining the suitability of the product for its intended use and the appropriate manner of utilizing the product in purchaser's production processes and applications so as to insure safety, quality and effectiveness. Purchasers are further responsible for obtaining necessary patent rights to practice any invention in connection with the use of purchased product and any other product or process. DSM Desotech reserves the right to change specifications of their products without notice. © 2016 DSM IP ASSETS B.V. All rights reserved.

102016 | SOMOS-ELEMENT-SS-PDS\_Letter

Visit us online at [www.dsm.com/somos](http://www.dsm.com/somos)