SOMOS 201

MATERIAL FOR SLS® SYSTEMS

Technology:	Selective Laser Sintering, SLS
Material Class:	Powder; Thermoplastic Elastomer

Automotive Ducts

Rapidly create flexible, rubber-like parts *without tools* — and dramatically cut test and correction cycles

With SOMOS 201 thermoplastic elastomer material, you can create flexible, functional parts with rubber-like performance characteristics, directly in your SLS® system. Together SOMOS 201 and the SLS system eliminate the costs and lead times of pre-production tooling by letting you test and optimize designs *before* the expensive tooling step.

Quickly produce nearly any rubber prototype or part. SOMOS 201 is excellent for complex, rubber-like elastomer parts, including seals, gaskets, and hoses. Its polyurethane infiltration material improves surface finish and resistance to abrasion. Seal parts to make them fluid-tight, even under pressure.

Add color for improved presentations. Seal parts in virtually any color polyurethane to color-code assemblies or highlight components of demonstration units.

Use SOMOS 201 material for:

- Flexible, rubber-like prototypes and parts — no tooling required
- Gaskets, hoses, seals, and other watertight parts
- Rapid pre-production testing and optimization
- Demonstration models
- Low-volume manufacturing

Benefits

- Rubber-like flexibility and functionality
- Durability and stability
- Fluid-tight, even under pressure
- High elongation
- Excellent abrasion resistance
- Array of color options

3® SYSTEMS

SOMOS 201 Typical Properties
for the SLS systems

Powder Properties	Units	Test Method	SOMOS 201 (1)	Infiltrated (2)
Density Tap	g/cm^3	ASTM D4164	0.58	
Particle Size Average (1) d_{50} (3)	µm	Laser Diffraction	93	
Particle Size Range (1) 90%	µm	Laser Diffraction	23-190	
Specific Gravity 20°C		ASTM D792	0.91	1.07

Thermal Properties	Units	Test Method	SOMOS 201 (1)	Infiltrated (2)
Melting Point: T_m	°C	DSC	156	

Mechanical Properties	Units	Test Method	SOMOS 201 (1)	Infiltrated (2)
Tensile Modulus	MPa	ASTM D638	15.5	17.3
Tensile Elongation at Break	%	ASTM D638	110	130
Stress at 5% strain	MPa	ASTM D638	1.8	2.2
Stress at 10% strain	MPa	ASTM D638	2.0	2.6
Flexural Modulus at -40°C	MPa	ASTM D790	23	37.3
at 23°C	MPa	ASTM D790	13.4	14.1
at 100°C	MPa	ASTM D790	3	7
Initial Tear Resistance				
Die C at 23°C	kN/m	ASTM D624	6	23.1
Die C at 100°C	kN/m	ASTM D624	5.2	6
Abrasion Resistance				
Taber, CS-17 wheel, 1kg load	mg/1000/cycles	ASTM D4060	520	0.3
Taber, H-18 wheel, 1kg load	mg/1000/cycles	ASTM D4060	870	0.5
Bursting Strength (Straight) 23°C 25mm ID x 2 mm thick x 300 mm long hose	kPa	ASTM D380	0	>160
Shore A Hardness 23°C		ASTM D2240	74	75

Electrical Properties	Units	Test Method	SOMOS 201 (1)
Volume Resistivity 22°C, 50% RH, 500V	ohm x cm	ASTM D257-93	1.5E + 13
Surface Resistivity 22°C, 50% RH, 500V	ohm x cm	ASTM D257-93	1.9E + 13
Dielectric Constant 22°C, 50% RV, 5V 1000Hz		D150-95	2.9
Dielectric Strength 22°C, 50% RH, under oil, 500V V/sec	v/mm	D149-95a	4.1E + 3
Comparative Tracking Index	V	D5288-92 and/or IEC Standard 112	315, TI-Cu <3mm depth

(1) Data was generated from the testing of parts produced with the SOMOS 201 material the Materials Guide processing conditions.

(2) Data was generated from the testing of parts produced with the SOMOS 201 material the Materials Guide processing conditions and then infiltrating using the BJB ST-1040 polyurethane.

(3) Results are based upon the volume distribution of particles.

Detailed test conditions are available upon request. Expected shelf life of this material is at least twelve months, when stored in dry conditions at ambient temperatures.

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