PRELIMINARY

DuraForm® Flex plastic

Flexible plastic material for use with all SLS® systems

An elastomeric plastic with outstanding rubber-like performance characteristics used to produce functional prototypes or end-use parts where flexible characteristics is a key requirement.

Above: Radiator hose prototype withstands bending without permanent damage or deformation (shown with neutral infiltrant).

Left: Primary infiltrant colors of red, yellow and blue can be mixed to create custom colors (black infiltrant also available).

APPLICATIONS

- Functional rubber-like prototypes and parts without tooling
  - Gaskets, hoses, seals, and other rubber-like parts
  - Watertight parts
  - Athletic shoes and equipment
- Rapid pre-production testing and optimization
- Demonstration models
- Low-volume manufacturing

BENEFITS

Rubber-like flexibility and functionality
- Use in place of urethane, silicone, or rubber parts

Durability and stability
- Accomodates harsh environmental conditions such as heat and chemicals

Superior surface finish and fine feature detail
- Minimizes finishing and renders even fine details
- Builds thin 0.004 in (0.1 mm) layer thickness for improved surface finish*

Superior tear resistance compared to competitive materials
- Resilient material withstands bends and deformation

Wide processing latitude
- Excellent output yield

Fluid-tight, even under pressure
- Easy-to-apply infiltration fluid seals parts for functional applications

Array of color options
- Simulate end-use coloration with colored infiltrants — red, yellow, blue or black. Neutral infiltrant sealer also available.
- Easily mix custom colors

* See back side for details.

DuraForm Flex plastic

For use with all Sinterstation SLS systems

"DuraForm Flex is a significant leap forward in material development," said Fabio Ciciani, CEM's partner. "With DuraForm Flex, producing flexible parts is simple -- there are no special requirements. The possibility to infiltrate and color parts easily, make this material very interesting for our automotive, appliance and shoe-sole markets."

— Fabio Ciciani, CEM

TECHNICAL DATA (PRELIMINARY)

Powder Properties

MEASUREMENT	CONDITION	VALUE:
Appearance	visual	opaque white
Density (tap)	ASTM D4164	0.44 g/cm^3
Particle Size Ave. d_{50}	Laser Diffraction	85 µm
Particle Size Range 90%	Laser Diffraction	21 - 138 µm
Melting Point: T_m	DSC	192 °C (378 °F)

Sintered Properties

MEASUREMENT	METHOD/CONDITION	VALUE (AS PRODUCED)	VALUE (INFILTRATED)
Tensile Strength	ASTM D638	1.6 MPa (228 PSI)	20 MPa (293 PSI)
Tensile Modulus	ASTM D638	6.4 MPa (926 PSI)	9.9 MPa (1440 PSI)
Elongation at Break (%)	ASTM D638	104 %	117%
Flexural Modulus at 23 °C (73 °F)	ASTM D790	5.9 MPa (860 PSI)	9.4 MPa (1360 PSI)
Initial Tear Resistance Die C at 23 °C (73 °F)	ASTM D624	15.1 kN/m (86 lb/lin)	16.8 kN/m (96 lb/lin)
Abrasion Resistance		(per 1000 cycles)	
Taber, CS-17 wheel, 1 kg (2.2 lb) load	ASTM D4060	83.5 mg	
Bursting Strength (Straight) @23 °C 25 mm ID x 2 mm thick x 300 mm long hose		0 PSI	11 PSI (with Flex-Seal infiltration) >30 PSI (with two-part polyurethane infiltration)
Shore A Hardness at 23 °C	ASTM D2240	60	67

Chemical Resistance - Material doesn't dissolve in hydrocarbons, ketones, ethers and alcohols. May swell in some solvents or solvent mixtures.

Detailed test conditions are available upon request. Performance characteristics may vary according to product application and/or operating conditions.

* Owners of Sinterstation 2000, 2500 and 2500ci SLS systems are limited to 0.005 in build layer thickness rather than the 0.004 in layer thickness used by Sinterstation 2500plus or later SLS systems.

3D SYSTEMS

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