SINTERING

DuraForm® Flex Plastic

DuraForm® Flex plastic can be infiltrated to color, strengthen and seal parts.

A durable, rubber-like material with good tear resistance and burst strength

Applications

- Gaskets, hoses and seals
- Athletic footwear
- Ear molds
- "Soft-touch," over molded grips

Features

- Rubber-like flexibility
- Durable and tear-resistant
- Resists harsh environments
- Good long-term stability
- Excellent surface finish and feature detail
- Create colored parts using standard infiltrants
- Fully recyclable

Benefits

- Rapidly produce parts with the look and feel of rubber and thermoplastic elastomers
- Eliminate the time and cost of casting, machining or other secondary processes
- Address broad applications requiring rubber-like flexibility and durability
- Address end-use applications requiring long-term stability
- Minimal finishing required
- Reduced cost per part

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For use with all selective laser sintering (SLS®) Systems

DuraForm® FlexSeal Infiltration
FlexSeal fluid infiltration is an easy-to-use method for coloring, strengthening, and sealing DuraForm Flex parts.

DuraForm FlexSeal (1 kg containers) is available in the following colors:

24130-902 Black
24131-902 Red
24132-902 Yellow
24133-902 Blue
24136-902 Natural

Two-Part Polyurethane Infiltration
Infiltration with a two-part polyurethane increases Shore A hardness, creates a watertight barrier, and significantly enhances the burst strength.

FlexSeal colors can be mixed to create custom colors.

Technical Data

Powder Properties

Measurement	Condition	Value
Density (tap)	ASTM D4164	0.44 g/cm^3

Sintered Properties

Measurement	Condition	As Sintered		Infiltrated with FlexSeal (8 Dip Process)	
		Metric	U.S.	Metric	US
Tensile Strength, Ultimate	ASTM D638	1.8 MPa	262 psi	2.3 MPa	335 psi
Tensile Modulus	ASTM D638	7.4 MPa	1080 psi	9.2 MPa	1340 psi
Elongation at Break	ASTM D638	110 %	110 %	151 %	151 %
Flexural Modulus (@ 23 °C)	ASTM D790	5.9 MPa	860 psi	7.8 MPa	1130 psi
Initial Tear Resistance (Die C @ 23 °C)	ASTM D624	15.1 kN/m	86 lb/in	15.4 kN/m	88 lb/in
Abrasion Resistance Taber, CS-17 wheel, 1 kg load	ASTM D4060	83.5 mg (per 1000 cycles)		For applications requiring abrasion, infiltration is not recommended.	
Bursting Strength (Straight) @ 23 °C (25 mm ID x 2 mm thick x 300 mm long hose)	No infiltration 2 part Polyurethane Infiltration FlexSeal Infiltration	0 MPa	0 psi	 0.21 MPa 0.076 MPa	 > 30 psi 11 psi
Shore A Hardness @ 23 °C	ASTM D2240	45 - 75		55 - 80	
Electrical Properties					
Volume Resistivity	ASTM D257	1.3 x 10^{14} ohm-cm			
Surface Resistivity	ASTM D257	1.1 x 10^{14} ohm-cm			
Dissipation Factor, 1 KHz	ASTM D150	0.003			
Dielectric Constant, 1 KHz	ASTM D150	0.003			
Dielectric Strength	ASTM D149	1.9 kV/mm	47 kV/in		

Chemical Resistance - Material does not dissolve in hydrocarbons, ketones, ethers or alcohols, but may lose some mechanical properties. May swell in some solvents or solvent mixtures.

Data was generated by building parts under typical default parameters. DuraForm Flex plastic was processed on a base-level HiQ™ SLS system at 9 watts laser power, 200 inches/sec (5 m/sec) scan speed, and a powder layer thickness of 0.004 inches (0.1mm).

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