Material Information

Elastic 50A Resin

Introduction
Formlabs Elastic 50A Resin is a soft, highly elastic material designed to simulate the look, feel, and mechanical properties of molded silicone. With a Shore durometer of 50A, it offers high elongation and excellent tear resistance, making it ideal for parts that will bend, stretch, compress, and return to their original shape.

Advantages
Elastic 50A Resin combines the flexibility of silicone with the precision of LCD printing, enabling the creation of complex geometries that would be difficult or impossible to mold traditionally. Its transparency supports visual inspection and aesthetic prototyping, while its compatibility with fine features allows for intricate, functional designs.

Disadvantages
Due to its softness and elasticity, Elastic 50A Resin is not suitable for applications requiring high structural rigidity or load-bearing performance.

Tolerance
±200μm or 0.2%

Color
Translucent Ivory White

Recommendation
Best for producing soft, flexible prototypes and functional parts that require repeated bending, stretching, or compression without tearing. It excels in wearable components, compressible seals, soft robotics, medical models, and cushioning elements.

Material Specifications			
Property	Method	Green	Post-Cured
Tensile Strength	ASTM D412-06 (A)	1.7MPa	3.4MPa
Stress at 50% Elongation	ASTM D412-06 (A)	0.92MPa	0.94MPa
Stress at 100% Elongation	ASTM D412-06 (A)	1.54MPa	1.59MPa
Elongation at Break	ASTM D412-06 (A)	160%	
Tear Strength	ASTM D624-00	8.9kN/m	19.1kN/m
Shore Hardness	ASTM 2240	40A	50A
Compression Set (23 °C for 22 hours)	ASTM D395-03 (B)	2%	2%
Compression Set (70 °C for 22 hours)	ASTM D395-03 (B)	3%	9%

Attention

After curing, the part will take on a more yellow hue. Over time, exposure to UV light and environmental stress may cause gradual degradation. Additionally, its flexible nature can make support removal more delicate, and extended solvent washing beyond recommended times may weaken the material.

Applications

3DSPRO finds people using Elastic 50A Resin in the following industries and applications:

Wearable devices and accessories:
Soft straps, custom-fit bands, cushioning pads, and ergonomic grips for comfort and flexibility.

Consumer electronics interfaces:
Compressible buttons, tactile keypads, vibration-dampening mounts, and protective bumpers.

Soft robotics and automation:
Compliant grippers, flexible joints, pneumatic actuators, and adaptive contact surfaces.

Medical and anatomical models:
Soft tissue replicas, surgical training aids, prosthetic liners, and patient-specific anatomical models.

Special effects and props:

Stretchable skins, flexible molds, impact-safe stunt components, and translucent costume elements.