

Material Information

Tough 2000 Resin



Introduction

Formlabs Tough 2000 Resin is engineered to simulate the strength and rigidity of ABS for functional prototypes and end-use parts. It produces parts that are difficult to bend and can withstand heavy-duty use. The neutral, professional finish ensures parts blend seamlessly into industrial and consumer environments.

Advantages

Tough 2000 Resin delivers high stiffness and strength, enabling the production of parts that resist bending under load while maintaining dimensional accuracy. It is well-suited for simulating ABS in functional testing, producing jigs, fixtures, and housings that can handle repeated mechanical stress.

Disadvantages

It is less flexible than Tough 1500 Resin and not suitable for applications requiring high elongation or impact absorption. Its rigidity can make thin features more prone to fracture under sudden shock, and the glassy stiffness may not be ideal for parts that require repeated flexing.

Tolerance

±200µm or 0.2%

Color

Charcoal

Recommendation

Best suited for rugged prototypes, manufacturing aids, and end-use parts that require high stiffness, strength, and minimal deflection under load.

Material Specifications			
Property	Method	Green	Post-Cured
Tensile Strength	ASTM D638-14	29MPa	46MPa
Tensile Modulus	ASTM D638-14	1.2GPa	2.2GPa
Elongation at Break	ASTM D638-14	74%	48%
Flexural Modulus	ASTM D790-15	0.45GPa	1.9GPa
Notched Izod	ASTM D256-10	79J/m	40J/m
Heat Deflection Temp. (1.8MPa)	ASTM D648-16	42°C	53°C
Heat Deflection Temp. (0.45MPa)	ASTM D648-16	48°C	63°C
Thermal Expansion, 0- 150 °C	ASTM E831-13	107µm/m/°C	91µm/m/°C

Attention

Due to the characteristics of resin materials, products printed with resin materials will gradually turn yellow and become brittle after long-term exposure to direct sunlight. If you want to avoid this from happening, you may need to move it out of direct sunlight or add 3D Plus™ services (such as coating) to block out the sunlight.

Applications

3DSPRO finds people using Tough 2000 Resin in the following industries and applications:

Industrial tooling and fixtures:

Jigs, fixtures, and assembly aids requiring minimal deflection under load.

Functional prototyping:

Strong, stiff prototypes simulating ABS for mechanical testing.

Manufacturing aids:

Positioning tools, guides, and supports for production workflows.

Housings and enclosures:

Protective casings for electronics, machinery, and consumer products.

Automotive and aerospace:

Structural brackets, mounts, and components are exposed to vibration and mechanical stress.