

Material Information

High-Temp Resin



Introduction

Formlabs High-Temp Resin is a high-performance 3D printing material engineered for applications requiring exceptional thermal stability. It is ideal for producing parts that must withstand direct contact with hot air, gas, or fluids. The printed part has good stiffness, dimensional stability, and a smooth surface finish.

Advantages

High-Temp Resin offers great heat resistance, enabling parts to maintain their shape and mechanical integrity under extreme thermal loads. It supports fine detail resolution and smooth surfaces, allowing for precise functional parts without extensive finishing.

Disadvantages

It is more brittle than engineering resins designed for impact resistance or flexibility. It is not recommended for parts subject to high mechanical shock or repeated bending.

Tolerance

$\pm 200\mu\text{m}$ or 0.2%

Color

Translucent Beige

Recommendation

Best suited for applications where parts must endure sustained high temperatures without deformation, such as thermal testing fixtures, hot fluid manifolds, and heat-resistant molds.

Material Specifications				
Property	Method	Green	Post-Cured for 60min at 60°C	Post-Cured for 120 min at 80°C and 180 min at 160°C
Tensile Strength	ASTM D638-14	21MPa	58MPa	49MPa
Tensile Modulus	ASTM D638-14	0.75GPa	2.8GPa	2.8GPa
Elongation at Break	ASTM D638-14	14%	3.3%	2.3%
Flexural Strength at Break	ASTM D790-15	24MPa	95MPa	97MPa
Flexural Modulus	ASTM D790-15	0.7GPa	2.6GPa	2.8GPa
Notched Izod	ASTM D256-10	33J/m	18J/m	17J/m
Heat Deflection Temp. (1.8MPa)	ASTM D648-16	44°C	78°C	101°C
Heat Deflection Temp. (0.45MPa)	ASTM D648-16	49°C	120°C	238°C
Thermal Expansion	ASTM E831-13	118µm/m/°C	80µm/m/°C	75µm/m/°C

Attention

Extended solvent exposure during washing can degrade surface quality, and the additional thermal post-cure step required for maximum HDT may not be practical for all workflows.

Applications

3DSPRO finds people using High-Temp Resin in the following industries and applications:

Thermal testing and validation:

Heat-resistant jigs, fixtures, and component mounts for high-temperature performance testing.

Hot fluid and gas handling:

Manifolds, ducts, and housings for hot air, steam, or chemical-resistant fluid flow.

Molding and tooling:

Injection mold inserts, thermoforming tools, and composite layup molds for short-run production.

Automotive and aerospace:

Under-the-hood components, heat shields, and housings that are exposed to elevated temperatures.

Industrial equipment:

Heat-resistant brackets, covers, and enclosures for machinery operating in high-temperature environments.