Material Information

Flame Retardant Resin

Introduction
Formlabs Flame Retardant (FR) Resin is a UL 94 V-0 certified, self-extinguishing material designed for producing heat-resistant, stiff, and creep-resistant parts that meet stringent safety requirements. It is also FAR-rated for aerospace applications, making it suitable for environments with ignition sources or elevated temperatures.

Advantages
FR Resin combines flame retardancy with mechanical strength, enabling the production of certified, self-extinguishing parts without the design constraints of traditional manufacturing. It maintains stiffness and dimensional stability under heat, resists creep over time, and supports post-fabrication operations such as tapping, trimming, and drilling.

Disadvantages
It is not intended for applications requiring high flexibility or impact absorption. Its specialized formulation may come at a higher material cost compared to general-purpose resins.

Tolerance
±200µm or 0.2%

Color
Solid Gray

Recommendation
Best suited for applications where flame retardancy, heat resistance, and stiffness are critical, such as aerospace interiors, automotive components, and industrial enclosures. It is ideal for producing certified parts that must meet UL 94 V-0 or FAR standards while maintaining a professional, injection-molded appearance.

Material Specifications				
Property	Method	Green	Post-Cured for 60 min at 70 °C	Post-Cured for 120 min at 80 °C
Tensile Strength	ASTM D638-14	24MPa	38MPa	41MPa
Tensile Modulus	ASTM D638-14	1.8GPa	2.9GPa	3.1GPa
Elongation at Break	ASTM D638-14	20%	9.4%	7.1%
Flexural Strength	ASTM D790-15	36MPa	72MPa	75MPa
Flexural Modulus	ASTM D790-15	1.3GPa	2.7GPa	
Notched Izod	ASTM D256-10	19J/m	22J/m	
Unnotched Izod	ASTM D4812-11	227J/m	241J/m	257J/m
Heat Deflection Temp. (1.8MPa)	ASTM D648-16	45°C	71°C	83°C
Heat Deflection Temp. (0.45MPa)	ASTM D648-16	55°C	94°C	111°C
Glass Transition Temperature (Tg)	Peak of tan delta, Heating Rate: 3°Cpm	101°C	130°C	144°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 Flame Retardant Resin in the following industries and applications.

Aerospace interiors and components:

Cabin panels, ventilation covers, seat fixtures, and protective housings meet FAR flame safety standards.

Automotive and rail systems:
Interior trim, dashboard components, cable routing covers, and enclosures for electrical systems.

Consumer and medical electronics:
Protective casings, internal component mounts, and flame-safe enclosures for devices.

Industrial tooling and fixtures:
Jigs, fixtures, and replacement parts for high-temperature or ignition-prone environments.

Custom enclosures and housings:
Certified flame-retardant covers, control panels, and protective shells for sensitive equipment.