FUSED DEPOSITION MODELING

ULTEM 9085 (Triton PEI 9085)

High-Performance Thermoplastic for Mission-Critical Applications



ULTEM 9085 is a highly versatile and reliable thermoplastic that has earned its reputation as a go-to material for demanding applications. Its exceptional strength-to-weight ratio, heat resistance, flame, smoke, and toxicity rating, and documented traceability make it an ideal choice for industries seeking reliable and high-performance solutions. Triton PEI 9085 is 3DXTECH's ULTEM 9085 PEI for Stratasys printers, for enclosures, brackets and fixtures in hot service. It is inherently flame-resistant with low smoke evolution, keeps its strength and stiffness at elevated temperatures, and holds its dimensions with low heat creep.

BUILD VOLUME	LEAD TIME	LAYER HEIGHT	TOLERANCE
914 × 610 × 914 mm	**2-4 business days**	**0.254-0.330 mm**	**±0.25 mm or ±0.3%, whichever is greater**

MECHANICAL PROPERTIES

Triton PEI 9085 brings the strength and stiffness of ULTEM 9085 PEI to enclosures, brackets and fixtures, and keeps its strength and modulus at elevated temperatures.

Triton PEI 9085 values come from flat (XY) samples printed on a Fortus 400mc at 0.33 mm layers with solid infill and tested to ISO standards, so they are not directly comparable with the ASTM values for Stratasys ULTEM 9085, which are measured on edge and upright.

PROPERTY	VALUE	TEST STANDARD
Tensile Strength at Break (XY)	**55 MPa**	ISO 527
Tensile Modulus (XY)	**2200 MPa**	ISO 527
Elongation at Break (XY)	**3 %**	ISO 527
Flexural Strength (XY)	**91 MPa**	ISO 178
Flexural Modulus (XY)	**2170 MPa**	ISO 178

THERMAL PROPERTIES

Glass transition is measured by DSC and heat deflection at 0.45 MPa on flat samples to ISO 75. The high glass transition temperature and low heat creep keep parts stable in hot service.

PROPERTY	VALUE	TEST STANDARD
Glass Transition Temperature	**186 °C**	DSC
HDT @ 0.45 MPa / 66 psi (XY)	**158 °C**	ISO 75

PHYSICAL PROPERTIES

Triton PEI 9085 is specified by its density, measured to ISO 1183 on printed samples. Low heat creep and a very low, uniform coefficient of thermal expansion keep parts dimensionally stable.

PROPERTY	VALUE	TEST STANDARD
Density	**1.34 g/cm^3**	ISO 1183

ELECTRICAL PROPERTIES

The surface resistance of Triton PEI 9085 confirms it as an electrical insulator for housings, connectors and insulating features.

PROPERTY	VALUE	TEST STANDARD
Surface Resistance	**> 10^{13} Ω/sq**	IEC 60093

CHEMICAL PROPERTIES

Triton PEI 9085 resists automotive fluids, alcohols and aqueous solutions. It has no chemical ratings of its own; the table shows the Stratasys ULTEM 9085 class ratings as a guide to the resin.

Chemical ratings are screening guidance; confirm them with application-specific testing before production release.

CHEMICAL	RATING
Petroleum fuels	**Excellent**
Windshield washer fluid	**Excellent**
Weak bases (pH 8–10)	**Excellent**
Deionized water	**Excellent**
Aliphatic hydrocarbons	**Good**
Aromatic hydrocarbons	**Good**
Alcohol / ethanol	**Good**
Esters	**Good**
Motor oil	**Good**
Petroleum greases	**Good**
Silicone greases and oils	**Good**
Antifreeze / engine coolant	**Good**
Weak acids (pH 3–6)	**Good**
Strong bases (pH > 10)	**Good**
Ketones (MEK, acetone)	**Limited**
Strong acids (pH < 3)	**Limited**
Transmission fluid	**Limited**
Brake fluid	**Limited**
Halogenated hydrocarbons (CFCs)	**Poor**
Phenols	**Poor**

MANUFACTURING

Colours & finishes	**Natural tan or black; support removal, sanding, bead blasting, painting and machining**