

Preliminary

P3™ Deflect™ 110

Rigid production-grade resin with 110 °C / 230 °F heat deflection temperature for demanding applications requiring dimensional stability.

P3™ Deflect 110 is a high-temperature (HDT 110 °C / 230 °F), rigid resin engineered for demanding applications requiring thermal stability, stiffness, and dimensional accuracy. Ideal for automotive and industrial applications like functional end-use parts, manufacturing aids, PU/blow molding and tooling exposed to elevated temperatures and mechanical loads. It's ideal to replace machined thermoplastics in selected tooling applications.



Key Benefits

- High heat deflection temperature (HDT) of 110 °C / 230 °F
- Rigid & strong
- Strong dimensional stability
- Resistant to water and chemicals
- Long-term UV-stability
- Polyurethane-based
- Black

Industries & Applications

- Automotive under-the-hood, brackets, housings, covers
- Industrial machinery components exposed to heat and load
- Tooling, jigs, fixtures, PU/blow molding and production aids
- Functional validation parts requiring thermal durability

Liquid Properties

Property	Method	Value
Appearance		Black
Viscosity, 25 °C	Cone/Plate Rheometer ²⁾	315 mPa·s
Viscosity, 30 °C	Cone/Plate Rheometer ²⁾	220 mPa·s
Density (Printed Part)	ASTM D792	1.20 g/cm ³
Density (Liquid Resin)	ASTM D4052-18a	1.12 g/cm ³



Mechanical Properties

Property	Method	Value
E Modulus ²⁾	ASTM D638	3,070 MPa
Ultimate Tensile Strength ²⁾	ASTM D638	74 MPa ¹⁾
Elongation at Break ²⁾	ASTM D638	5% ¹⁾
Flexural Modulus	ASTM D790	3,100 MPa
Flexural Strength	ASTM D790	120 MPa ¹⁾
Notched Izod (Machined), 23 °C	ASTM D256	17 J/m ¹⁾
Unnotched Izod, 23 °C	ASTM D4812	90 J/m
Notched Charpy (Machined), 23 °C	ISO 179-1	1.28 kJ/m ²
Hardness Shore D	ASTM D2240	84
Water Absorption, Short-Term (24 hours)	ASTM D570	0.34%

Thermal Properties

Property	Method	Value
HDT at 0.45 MPa	ASTM D648	108 °C / 226 °F
HDT at 1.82 MPa	ASTM D648	80 °C / 176 °F
Glass transition temperature (DMA, tan(d))	ASTM D4065	143 °C / 289 °F

Properties Overview

1. Measured on Origin Two
2. Determined with TA-Instrument DHR rheometer, cone/plate, diameter 60 mm, shear rate 100 s⁻¹
3. Tensile type ASTM D638 type IV, Pulling speed 5 mm/min
4. If not noted otherwise, all specimens are 3D printed. Samples were tested at room temperature, 23 °C.
ASTM sample size (L x W x H): ASTM D790 127 x 3.2 x 12.7 mm, ASTM D256 63 x 12.7 x 12 mm, ASTM D648 127 x 3.2 x 13 mm, ISO 179-1 80 x 4 x 10 mm.



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