

TPU-92A



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Termoplástico flexible y resistente



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FDM® TPU 92A es un poliuretano termoplástico con un valor Shore A de 92. El material exhibe un alto alargamiento, dureza superior, durabilidad y resistencia a la abrasión. FDM TPU 92A aporta los beneficios de los elastómeros a la impresión FDM 3D y ofrece la capacidad de producir rápidamente piezas de elastómero grandes y complejas. Las aplicaciones típicas incluyen mangueras flexibles, tubos, conductos de aire, sellos, cubiertas protectoras y amortiguadores de vibraciones. FDM TPU 92A está disponible en las impresoras 3D de la serie F123™ y es compatible con el material de soporte soluble QSR™.

Propiedades Mecánicas

Mechanical Properties	Test Method	Value	
		XY Orientation	XZ Orientation
Shore Hardness (molded)	ASTM D2240	92 Shore A	92 Shore A
Tensile Strength, Yield (Type 1, 0.125", 0.2"/min)	ASTM D412	15.6 MPa (2,265 psi)	16.1 MPa (2,332 psi)
Tensile Strength, Ultimate (Type 1, 0.125", 0.2"/min)	ASTM D412	16.8 MPa (2,432 psi)	17.4 MPa (2,519 psi)
Tensile Modulus (Type 1, 0.125", 0.2"/min)	ASTM D412	15.3 MPa (2,212 psi)	20.7 MPa (3,000 psi)
Elongation at Break (Type 1, 0.125", 0.2"/min)	ASTM D412	552%	482%
Elongation at Yield (Type 1, 0.125", 0.2"/min)	ASTM D412	466%	385%
Tensile Stress at 100% Elongation (PSI)	ASTM D412	6.9 MPa (999 psi)	7.6 MPa (1,096 psi)
Tensile Stress at 300% Elongation (PSI)	ASTM D412	11.0 MPa (1,598 psi)	11.9 MPa (1,722 psi)
Flexural Strength (Method 1, 0.05"/min)	ASTM D790	1.8 MPa (255 psi)	2.4 MPa (351 psi)
Flexural Modulus (Method 1, 0.05"/min)	ASTM D790	25.6 MPa (3,719 psi)	36.9 MPa (5,349 psi)
Flexural Strain at Break (Method 1, 0.05"/min)	ASTM D790	No break	No break
Tear Strength - Stamped	ASTM D624-C	84.6 N/mm (483 lbF/in)	NA
Compressive Strength, Yield (Method 1, 0.05"/min)	ASTM D695	2.6 MPa (384 psi)	2.6 MPa (384 psi)
Compressive Strength, Ultimate (Method 1, 0.05"/min)	ASTM D695	2.6 MPa (384 psi)	2.6 MPa (384 psi)
Compressive Modulus (Method 1, 0.05"/min)	ASTM D695	16.9 MPa (2,457 psi)	16.9 MPa (2,457 psi)
Compression Set at 22 Hours @ 23 °C	ASTM D395	21%	NA
Compression Set at 22 Hours @ 70 °C	ASTM D395	44%	NA

Thermal Properties	Test Method	Value
Heat Deflection (HDT) @ 66 psi	ASTM D648	38 °C (100.4 °F)
Heat Deflection (HDT) @ 15 psi	NA	56 °C (132.8 °F)
Vicat Softening Temperature (Rate B/50)	ASTM D1525	95 °C (203 °F)
Glass Transition Temperature (T _g)	DMA (SSYS)	-42 °C (-43.6 °F)
Coefficient of Thermal Expansion (x-direction)	ASTM E831	139 μm/(m·°C) (7.72E-05 in/(in·°F))
Coefficient of Thermal Expansion (y-direction)	ASTM E831	159 μm/(m·°C) (8.83E-05 in/(in·°F))
Coefficient of Thermal Expansion (z-direction)	ASTM E831	176 μm/(m·°C) (9.78E-05 in/(in·°F))

Electrical Properties	Test Method	Value	
		XY Orientation	XZ Orientation
Volume Resistivity	ASTM D257	6.09E+10 ohm-cm	7.17E+13 ohm-cm

Other	Test Method	Value
Specific Gravity	ASTM D792	1.13502
Flame Classification	UL94	HB* and

* HB: Slow burning on a horizontal specimen; burning rate < 76 mm/min for thickness < 3 mm or burning stops before 100 mm.

** V-2: Burning stops within 30 seconds on a vertical specimen; drips of flaming particles are allowed.