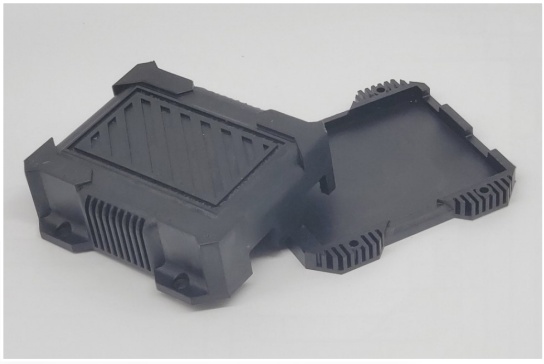
Formula — Photopolymer Resin Powered by Mech^T for Isotropic Static-Dissipative Performance



Formula1 by Mechnano is a black, rigid, static-dissipative photopolymer resin. Formula1 uses a urethane dimethacrylate base that includes a stable dispersion of discrete functionalized carbon nanotubes (Mech^T) to achieve consistent static dissipative properties. Mech^T does not settle in Formula1 resin, resulting in consistent EDS-capable parts. The discrete nature of Mech^T also produces parts that leave no carbon trails and improves key mechanical properties such as Tensile Strength, Modulus, and Impact Resistance. Formula1 is designed for vat photopolymerization additive manufacturing methods and allows for high resolution part fabrication with isotropic static dissipative and mechanical properties.

Part Properties

	METRIC	IMPERIAL	METHOD
Mechanical Properties			
Tensile Strength	68.1 MPa	9881.4 psi	ASTM D 638-14
Tensile Modulus	2.6 GPa	377.1 ksi	ASTM D 638-14
Yield Strength	40.6 MPa	5882.7 psi	ASTM D 638-14
Elongation at Break	3.8 %	3.8 %	ASTM D 638-14
Flexural Properties			
Flexural Strength	97.4 MPa	14,126.7 psi	ASTM D 790-15*
Flexural Modulus	1.8 GPa	261.1 ksi	ASTM D 790-15*
Impact Properties			
Notched IZOD	24 J/m	0.45 ft-lbf/in	ASTM D 256-10
Hardness			
Shore “D”	87	87	ASTM D 2240-15
Water Absorption	0.9 %	0.9 %	ASTM D 570-98
Thermal Properties			
Heat Deflection @1.8MPa	91.4 °C	196.5 °F	ASTM D 648-16
Heat Deflection @0.45MPa	91.3 °C	196.3 °F	ASTM D 648-16
Electrical Properties			
Surface Resistance	10^8 Ω	10^8 Ω	ASTM D 257

**Specimens did not yield or break within the 5% strain limit when tested by Procedure A, the increased strain was applied (Procedure B) to induce yield and/or break within the required 5% strain limit*

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Technical Data Sheet

Formula

Resin Properties

PROPERTY	CONDITION	VALUE			
		METRIC		IMPERIAL	
Color	**	Black		Black	
Density	25°C	1.1	g/cm^3	0.04	lbs/in^3
Viscosity	25°C	878.1	cps	878.1	cps

Disclaimer: the data contained in this document is based on our current knowledge and experience. The performance of the product may vary with processing conditions, operating conditions, application, or with end use. Mechnano, LLC makes no warranties, expressed or implied, regarding the accuracy of these results with regards to system or end application.

We Are Exponentially Improving Additive Manufacturing Materials

Mechnano is an Arizona-based startup of scientists and entrepreneurs who have spent the past several years applying proprietary CNT technology to AM polymers. Mech^T unleashes CNT potential in AM materials to achieve extraordinary performance.