

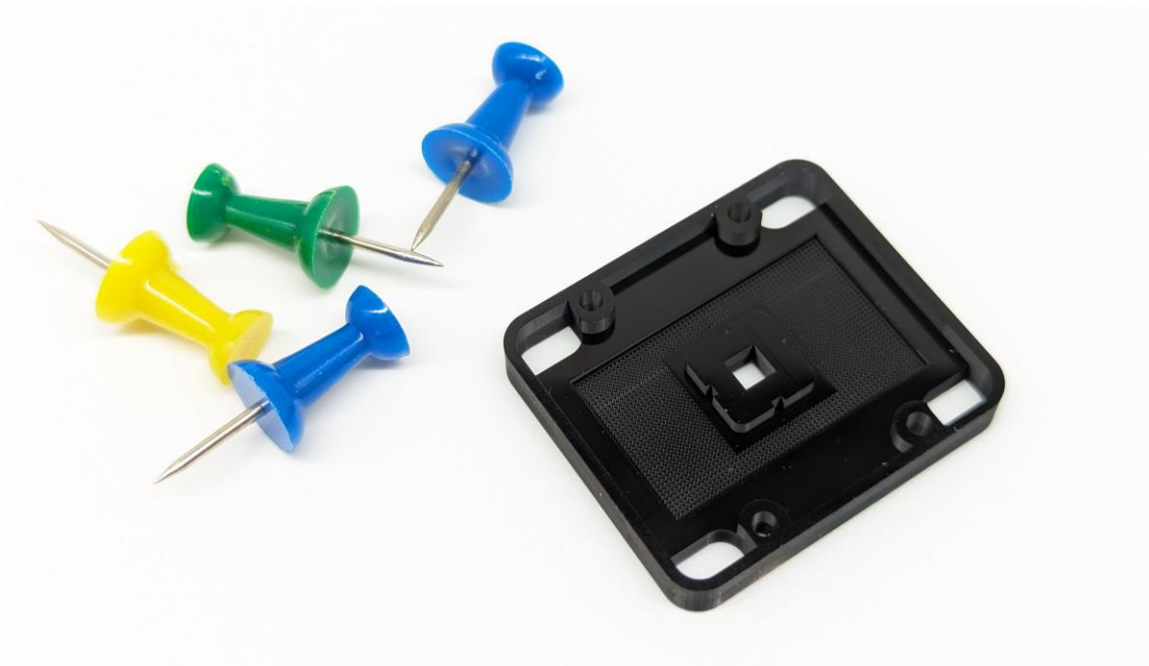
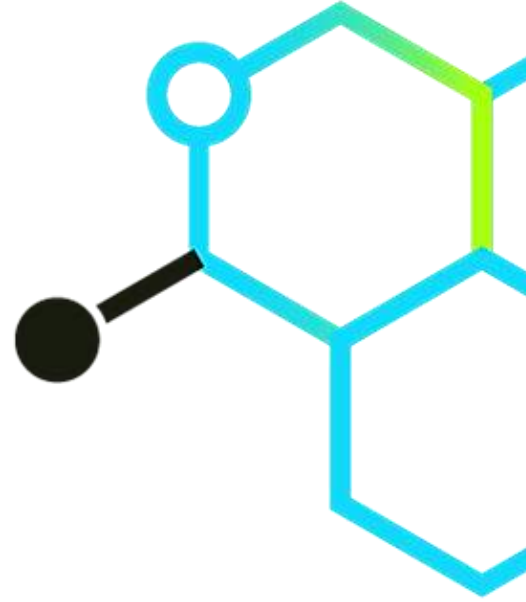
Technical Datasheet

FORMULA1μ

Rigid Static Dissipative

Photopolymer Resin

Black



Formula1μ

Formula1μ is a rigid, static-dissipative photopolymer resin. It uses a urethane methacrylate base that includes a stable dispersion of discrete functionalized carbon nanotubes (D'Func) to yield consistent surface resistance and enhances key mechanical performance properties such as Tensile Strength, Flexural Strength, and Impact Resistance.



Advantages

- Isotropic ESD properties
- Excellent surface finish & fine details
- Absence of carbon sloughing



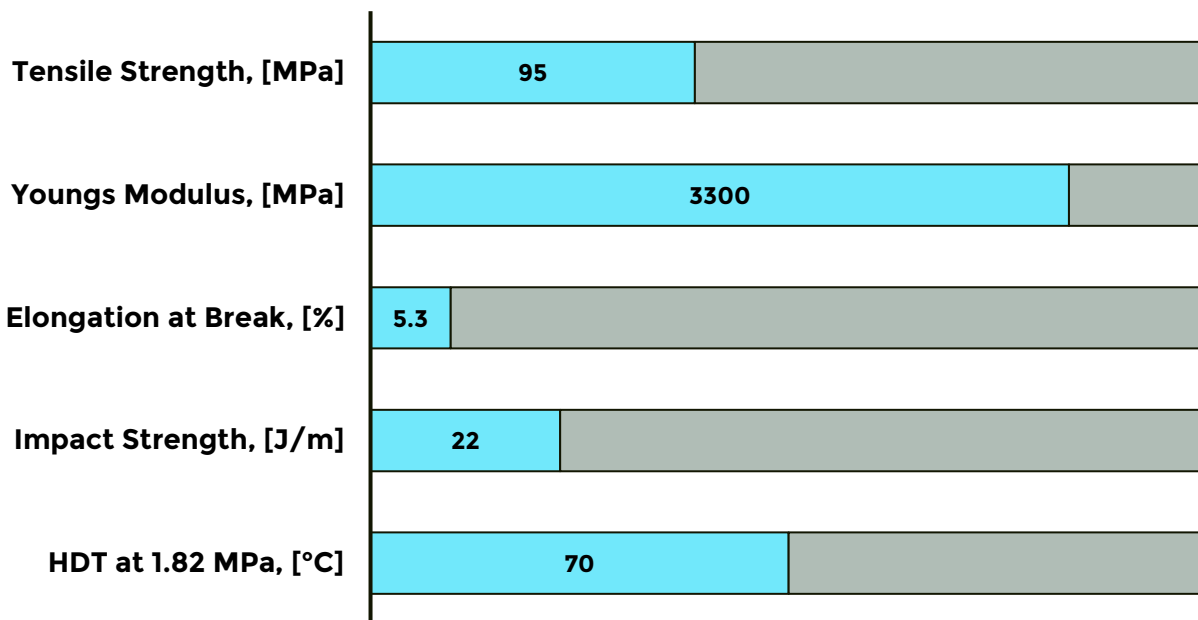
Industries

- Electronic Manufacturing
- Automotive
- Aerospace and Defense



Applications

- Electrical connectors
- Microelectronic components carriers & housings
- Test and burn-in carriers



PROPERTIES

The performance of the components is influenced by the hardware's processing parameters and post-cure protocols.

Mechanical Properties	Green	Post-Cured	Units	Method
Ultimate Tensile Strength	70-80	80-95	MPa	ASTM D 638-14
Tensile Modulus	2600-2700	3200-3300	MPa	ASTM D 638-14
Elongation at Break	3.2-5.5	3.3-5.3	%	ASTM D 638-14
Flexural Strength	85-110	80-115	MPa	ASTM D 790-15
Flexural Modulus	2200-2600	2800-3400	MPa	ASTM D 790-15
Flexural Strain at Break	5.8-9.2	3.8-4.6	%	ASTM D 790-15
IZOD Impact Strength (Notched)	15-24	17-22	J/m	ASTM D 256-10
Hardness Shore "D"	80-86	86-88		ASTM D 2240
Thermal Properties				
HDT (1.82 MPa)	50-60	60-75 ¹	°C	DMA ²
HDT (0.455 MPa)	60-65	75-95 ¹	°C	DMA ²
T _g		138	°C	DMA
Electrical Properties				
Surface Resistance	10 ⁷	10 ⁶ -10 ⁷	Ω	ANSI ESD S11.11
Volume Resistivity	10 ⁶ -10 ⁷	10 ⁷	Ω×cm	ASTM D257
Liquid Properties				
Viscosity (25°C) ²	1200-1300		cps	ASTM D7867
Density	1.1 - 1.2		g/cm ³	ASTM D1475

Notes

¹The HDT values can be improved with thermal and UV post-cure

² Measured using ElectroForce DMA in air

³The resin is shear-thinning. The data reported at shear rate 10, [1/s] @25°C



VERIFIED HARDWARE

OEM	System(s)	Status
BMF	25 µm & 10 µm	Qualified

POST-PROCESSING

Formula1µ requires post-processing to achieve specified performance. Prior to post-curing, support structures should be removed from the fabricated component, and the part should be washed. It is recommended to use compressed air to remove residual solvent from features such as holes, pockets, slots, etc. between cleaning steps and prior to post-curing.

Step	Agent	Method	Duration	Intervals
Cleaning 1	Glycol-Ether based cleaner	Agitated Bath	2 - 5 min	1 to 2
Cleaning 2*	IPA	Agitated Bath	2 - 3 min	1 to 2
Dry**	n/a	Compressed air	60 s	1 or 2
Wait before post-cure	n/a	Ambient	60 min	1

Notes

¹Dry before intervals

²Dark space is recommended for storage

Notes:

It is advised not to heat resin to temperatures exceeding 40°C.

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.

