

ESD-Safe and EMI Thermoplastic Polyurethanes

Elect Nano offers a broad range of next-generation electrostatic discharge (ESD) and electromagnetic interference (EMI) shielding thermoplastic elastomer molding compounds. These composite materials utilize Elect Nano's patented discrete carbon nanotube technology (dCNT) to achieve superior electrical property uniformity across molded specimen surfaces. Other benefits include performative mechanical properties, excellent surface finish, and low foreign particulate matter generation.

Polymer	Test Method	TPU 95A EMI	TPC 95A EMI	TPU 95A ESD
Physical Properties				
Density (g/cm ³)	ASTM D792	1.146	1.202	1.181
Mechanical Properties				
Hardness, shore A	ASTM D2240	93.6	97.1	94
Tensile Strength (MPa)	ASTM D412	18.0	18.5	26.1
Tensile Modulus (MPa)	ASTM D412	44.2	94.1	43.8
50% Modulus	ASTM D412	8.4	13.5	8.6
100% Modulus	ASTM D412	10.6	16.1	10.9
200% Modulus	ASTM D412	13.1	14.1	14.1
Elongation at Break (%)	ASTM D412	538.7	250.5	737.1
Compression Set (%)	ASTM D395	1.15	1.26	1.5
Tear Strength kJ/m	ISO 34, 100 mm/min Trousers	53.9	81.76	62.6
Electrical				
Total Shielding effectiveness (dB/cm)	28 GHz	44.5	55.24	-
Absorbed Shielding effectiveness (dB/cm)	28 GHz	37.8	47.9	-
Surface Resistance (Ohm)	ANSI STM11.11	4.55e5	5.94e5	1.10E10
Processing Parameters				
Drying Time (hrs)	-	12	12	12
Drying Temperature (°C)	-	80	80	80
Rear Temperature (°C)	-	195	175	195
Middle Temperature (°C)	-	200	180	200
Front Temperature (°C)	-	200	180	200
Nozzle Temperature (°C)	-	200	180	200
Processing Temperature (°C)	-	200	180	200
Mold Temperature (°C)	-	20	20	20
Screw Speed (RPM)	-	40-70	40-70	40-70