

MPPO LP ESD TGF30

Elect Nano MPPO LP ESD TGF30 is a next-generation low particle electrostatic discharge (ESD) safe injection molding compound with a high temperature polyphenylene oxide polymer base resin and 30 wt% thin glass fiber for improved mechanical properties and molding tolerances. This material utilizes Elect Nano's patented discrete carbon nanotube technology (dCNT) to achieve superior electrical property uniformity across molded specimens. Use of specialty thin diameter glass fibers provides excellent surface finish, low particle sloughing, good wear resistance, superior mechanical properties, high contrast laser marking and low warpage.

	Test Method	Unit	Values
Physical Properties			
Density	ASTM D792	g/cm ³	1.34
Mold Shrinkage (Flow Direction)	ASTM D955	%	0.24
Mold Shrinkage (Transverse Direction)	ASTM D955	%	0.98
Mechanical Properties			
Tensile Strength	ASTM D638	MPa	72
Tensile Modulus	ASTM D638	GPa	9.1
Tensile Elongation at Break	ASTM D638	%	0.8
Flexural Strength	ASTM D790	MPa	144
Flexural Modulus	ASTM D790	GPa	9.8
Notched Izod Impact Strength	ASTM D256	J/m	29
Thermal			
Heat Deflection Temperature (1.82 MPa)	ASTM E 2092	°C	177
Electrical			
Surface Resistance	ANSI STM11.11	Ohm	1E+08

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Processing Guidelines

Elect Nano MPPO LP ESD TGF30 is generally noted to have low moisture absorption at equilibrium, but properly drying material prior to injection molding is critical in achieving high quality molded parts. Drying should be carried out in a desiccant or membrane dryer that can maintain a dew point of $< -40^{\circ}\text{C}$.

	Unit	Recommended	Range
Drying Conditions			
Max Moisture Content	ppm	<200	0 – 300
Drying Time	hrs	2	2 – 4
Drying Temperature	$^{\circ}\text{C}$	120	100 – 120
Processing Parameters			
Injection Pressure	MPa	150	100 – 200
Injection Holding Pressure	MPa	60	40 – 100
Back Pressure	MPa	0.5	0.25 – 0.75
Holding Time	s	8	3 – 10
Injection Rate	cc/s	120	60 – 120
Injection Speed*	mm/s	60	30 – 60
Suck Back (Decompression)	mm	3	2 – 5
Melt Cushion	mm	4	3 – 5
Feed Zone Temperature	$^{\circ}\text{C}$	275	270 – 280
Compression Zone Temperature	$^{\circ}\text{C}$	310	300 – 320
Metering Zone Temperature	$^{\circ}\text{C}$	320	310 – 325
Nozzle Temperature	$^{\circ}\text{C}$	320	310 – 325
Melt Temperature	$^{\circ}\text{C}$	320	300 – 325
Mold Temperature	$^{\circ}\text{C}$	120	80 – 120
Screw Tangential Speed	mm/s	130	100 – 200
Screw Rotational Rate*	RPM	50	40 – 190

*Note: Linear injection speed (mm/s) and screw rotational rate (RPM) values depend on screw diameter. Values shown are calculated from the injection rates and screw tangential speed ranges for a 50mm diameter screw.