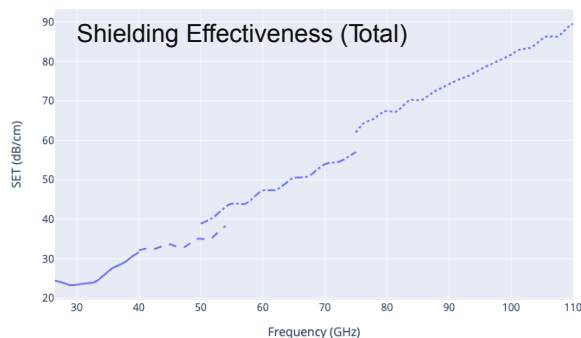
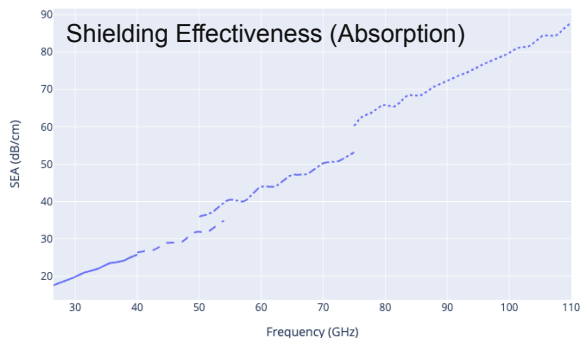


## THE TERmmINATOR™ COC

Elect Nano THE TERmmINATOR™ COC is a specialty electromagnetic interference (EMI) absorbing and shielding injection molding compound with a high temperature cyclic olefin copolymer (COC) base resin. This material utilizes Elect Nano’s patented discrete carbon nanotube technology (dCNT) to achieve superior electrical property uniformity across molded specimens with precision tuned dielectric properties for Extremely High Frequency (EHF) millimeter wave bands. Other benefits include high temperature stability, excellent surface finish, low moisture uptake, low outgassing and low optical reflectance.

	Test Method	Unit	Values
<b>Physical Properties</b>			
Density	ASTM D792	g/cm <sup>3</sup>	1.05
Mold Shrinkage (Flow Direction)	ASTM D955	%	0.59
Mold Shrinkage (Transverse Direction)	ASTM D955	%	0.64
<b>Mechanical Properties</b>			
Tensile Strength	ASTM D638	MPa	58
Tensile Modulus	ASTM D638	GPa	3.0
Tensile Elongation at Break	ASTM D638	%	2.4
Flexural Strength	ASTM D790	MPa	90
Flexural Modulus	ASTM D790	GPa	2.9
Notched Izod Impact Strength	ASTM D256	J/m	TBD
<b>Thermal</b>			
Heat Deflection Temperature (0.45 MPa)	ASTM E 2092	°C	170
<b>Electrical</b>			
Surface Resistance	ANSI STM11.11	Ohm	1.0E+06



## THE TERmmINATOR™ COC

### Processing Guidelines

Elect Nano THE TERmmINATOR™ COC is generally noted to have negligible moisture absorption at equilibrium, and therefore drying is not required. Proper mold cavity design is critical for achieving high strength, defect-free parts. Ensure cavities have uniform wall thickness where possible and smooth transitions in areas with varying wall thickness to avoid jetting and backfilling which can entrap air. Maximize the injection speed until flow instabilities or surface defects are observed. Increase venting at the end of flow patterns and weld lines until flash appears.

	Unit	Recommended	Range
<b>Drying Conditions</b>			
Max Moisture Content	ppm	<100	0 – 100
Drying Time	hrs	NA	NA
Drying Temperature	°C	NA	NA
<b>Processing Parameters</b>			
Injection Pressure	MPa	100	80 – 140
Injection Holding Pressure	MPa	60	40 – 100
Back Pressure	MPa	5	5 – 10
Holding Time	s	10	5 – 15
Cooling Time	s	40	30 – 50
Injection Rate	cc/s	25	15 – 50
Injection Speed*	mm/s	50	20 – 80
Suck Back (Decompression)	mm	1	0 – 4
Melt Cushion	mm	4	3 – 5
Feed Zone Temperature	°C	280	250 – 280
Compression Zone Temperature	°C	300	280 – 320
Metering Zone Temperature	°C	310	290 – 320
Nozzle Temperature	°C	310	280 – 320
Melt Temperature	°C	290	280 – 320
Mold Temperature	°C	130	120 – 150
Screw Tangential Speed	mm/s	130	80 – 200
Screw Rotational Rate*	RPM	100	60 – 150

\*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 25mm diameter screw.