CoolPoly® E2

Liquid Crystal Polymer

Celanese Corporation

Message:

CoolPoly E series of thermally conductive plastics transfers heat, a characteristic previously unavailable in injection molding grade polymers. CoolPoly is lightweight, netshape moldable and allows design freedom in applications previously restricted to metals. The E series is electrically conductive and provides inherent EMI/RFI shielding characteristics.

General Information				
UL YellowCard	E229777-229994			
Features	Conductivity			
	Heat conduction			
	Electromagnetic shielding (EMI)			
	Good formability			
	Radio frequency shielding (RFI)			
RoHS Compliance	RoHS compliance			
Forms	Particle			
Processing Method	Injection molding			
Physical	Nominal Value	Unit	Test Method	
Density	1.84	g/cm³	ISO 1183	
Molding Shrinkage			ASTM D955	
Flow	0.10	%	ASTM D955	
Transverse flow	0.30	%	ASTM D955	
Mechanical	Nominal Value	Unit	Test Method	
Tensile Modulus	24300	MPa	ISO 527-2	
Tensile Stress (Yield)	80.0	MPa	ISO 527-2	
Nominal Tensile Strain at Break	0.25	%	ISO 527-2	
Flexural Modulus	32300	MPa	ISO 178	
Flexural Stress	139	MPa	ISO 178	
Impact	Nominal Value	Unit	Test Method	
Charpy Notched Impact Strength	2.0	kJ/m²	ISO 179	
Charpy Unnotched Impact Strength	4.7	kJ/m²	ISO 179	
Thermal	Nominal Value	Unit	Test Method	
Heat Deflection Temperature				
0.45 MPa, not annealed	300	°C	ISO 75-2/B	
1.8 MPa, not annealed	268	°C	ISO 75-2/A	
Linear thermal expansion coefficient			ISO 11359-2	
Flow	8.2E-6	cm/cm/°C	ISO 11359-2	
Lateral	9.1E-6	cm/cm/°C	ISO 11359-2	
Specific Heat	900	J/kg/°C	ASTM C351	

Thermal Conductivity	20	W/m/K	ASTM C177
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	1.0	ohms	ASTM D257
Volume Resistivity	70	ohms·cm	ASTM D257
Flammability	Nominal Value	Unit	Test Method
Flame Rating (1.50 mm)	V-0		UL 94
Additional Information			

The value listed as Thermal Conductivity, ASTM C177, was tested in accordance with ASTM E1461. The value listed as Mold Shrinkage, ASTM D955, was tested in accordance with ASTM D551. The value listed as Specific Heat ASTM C351, was teste in accordance with ASTM E1461. Thermal Diffusivity, ASTM E1461: 0.1 cm²/secHDT B (0.45 MPa) Unannealed, ISO 75B-1-2: > 300°C

Injection	Nominal Value	Unit
Drying Temperature	180	°C
Drying Time	2.0 - 4.0	hr
Dew Point	-40.0	°C
Suggested Max Moisture	0.010	%
Rear Temperature	332 - 360	°C
Middle Temperature	338 - 371	°C
Front Temperature	343 - 382	°C
Nozzle Temperature	349 - 382	°C
Processing (Melt) Temp	349 - 393	°C
Mold Temperature	93.0 - 177	°C
Injection Pressure	103 - 138	MPa
Injection Rate	Fast	
Holding Pressure	2.00 - 8.00	MPa
Back Pressure	0.00 - 0.350	MPa
Screw Speed	75 - 150	rpm
Cushion	10.0 - 13.0	mm
Screw Compression Ratio	3.0:1.0	

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