

CoolPoly® E3603

Polyphthalamide

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			
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	1.56	g/cm ³	ISO 1183
Molding Shrinkage			ASTM D955
Flow	0.40	%	ASTM D955
Transverse flow	0.60	%	ASTM D955
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	9070	MPa	ISO 527-2
Tensile Stress (Yield)	44.0	MPa	ISO 527-2
Nominal Tensile Strain at Break	0.56	%	ISO 527-2
Flexural Modulus	9840	MPa	ISO 178
Flexural Stress	75.0	MPa	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength	2.0	kJ/m ²	ISO 179
Charpy Unnotched Impact Strength	4.7	kJ/m ²	ISO 179
Thermal	Nominal Value	Unit	Test Method
Thermal Conductivity	20	W/m/K	ASTM E1461
Heat Capacity	1050	J/kg/°C	ASTM E1461
Thermal Diffusivity	0.120	cm ² /s	ASTM E1461
Injection	Nominal Value	Unit	
Drying Temperature	104	°C	
Drying Time	12 - 24	hr	
Dew Point	-40.0	°C	
Suggested Max Moisture	0.050	%	

Rear Temperature	280 - 310	°C
Middle Temperature	300 - 315	°C
Front Temperature	305 - 325	°C
Nozzle Temperature	290 - 315	°C
Processing (Melt) Temp	310 - 325	°C
Mold Temperature	107 - 163	°C
Injection Pressure	6.90 - 10.3	MPa
Injection Rate	Moderate-Fast	
Holding Pressure	3.45 - 6.90	MPa
Back Pressure	0.00 - 0.350	MPa
Screw Speed	50 - 150	rpm
Cushion	6.30 - 12.7	mm
Screw Compression Ratio	2.5:1.0	

Injection instructions

Drying Conditions Starting Moisture Content

0.05 to 0.2%: 2 to 4 hr at 80°C

0.2 to 0.5%: 4 to 8 hr at 80°C

>0.5% or unknown: 12 to 24 hr at 104°C

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