

CoolPoly® D5506

Liquid Crystal Polymer

Celanese Corporation

Message:

CoolPoly D 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 D series is electrically non-conductive and can be used for its dielectric properties.

General Information			
UL YellowCard	E229777-101728974		
Features	Electrically Insulating		
	Thermally Conductive		
RoHS Compliance	RoHS Compliant		
Forms	Pellets		
Processing Method	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Density	1.80	g/cm ³	ISO 1183
Molding Shrinkage			ASTM D955
Flow	0.10	%	
Across Flow	0.30	%	
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	10900	MPa	ISO 527-2
Tensile Stress (Yield)	50.0	MPa	ISO 527-2
Nominal Tensile Strain at Break	0.70	%	ISO 527-2
Flexural Modulus	12300	MPa	ISO 178
Flexural Stress	84.0	MPa	ISO 178
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength	3.2	kJ/m ²	ISO 179
Charpy Unnotched Impact Strength	6.0	kJ/m ²	ISO 179
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, Unannealed	> 300	°C	ISO 75-2/B
1.8 MPa, Unannealed	263	°C	ISO 75-2/A
CLTE			ASTM E831
Flow	6.2E-6	cm/cm/°C	
Transverse	5.6E-6	cm/cm/°C	
Specific Heat	1000	J/kg/°C	ASTM E1461
Thermal Conductivity	10	W/m/K	ASTM E1461
Thermal Diffusivity	5.00	cSt	ASTM E1461

High Voltage Arc Resistance to Ignition (HVAR)	> 5.0	min	UL 746
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	2.0E+14	ohms	ASTM D257
Volume Resistivity	1.6E+16	ohms·cm	ASTM D257
Dielectric Strength	46	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
100 Hz	4.50		
1 MHz	3.50		
Dissipation Factor			ASTM D150
100 Hz	0.020		
1 MHz	2.0E-3		
Arc Resistance	300	sec	ASTM D495
Comparative Tracking Index	600	V	ASTM D3638
Hot-wire Ignition (HWI)	> 120	sec	ASTM D3874
Flammability	Nominal Value	Unit	Test Method
Flame Rating (1.00 mm)	V-0		UL 94
Injection	Nominal Value	Unit	
Drying Temperature	180	°C	
Drying Time	2.0 to 4.0	hr	
Dew Point	-34.0	°C	
Suggested Max Moisture	0.010	%	
Rear Temperature	330 to 360	°C	
Middle Temperature	340 to 370	°C	
Front Temperature	345 to 380	°C	
Nozzle Temperature	350 to 382	°C	
Processing (Melt) Temp	349 to 393	°C	
Mold Temperature	93.0 to 177	°C	
Injection Pressure	34.4 to 70.0	MPa	
Injection Rate	Fast		
Holding Pressure	6.89 to 34.5	MPa	
Back Pressure	0.00 to 0.350	MPa	
Screw Speed	75 to 150	rpm	
Cushion	10.0 to 13.0	mm	
Screw Compression Ratio	3.0:1.0		

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