CoolPoly® D5506

Liquid Crystal Polymer

Celanese Corporation

Technical Data

Product Description

CoolPoly D5506 is a thermally conductive, highly electrically insulative LCP based grade

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

Physical	Nominal Value	Unit	Test Method
Density	1.75	g/cm³	ISO 1183
Molding Shrinkage			ISO 294-4
Across Flow	0.30	%	
Flow	0.10	%	

Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	9890	MPa	ISO 527-2/1A
Tensile Stress (Break)	50.0	MPa	ISO 527-2/1A/5
Tensile Strain (Break)	0.86	%	ISO 527-2/1A/5
Flexural Modulus (23°C)	13500	MPa	ISO 178
Flexural Stress (23°C)	79.0	MPa	ISO 178

Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	3.6	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	7.0	kJ/m²	ISO 179/1eU

Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, Unannealed	277	°C	ISO 75-2/B
1.8 MPa, Unannealed	228	°C	ISO 75-2/A
Thermal Conductivity			ASTM E1461
-- [3]	1.9	W/m/K	
-- [4]	9.0	W/m/K	
-- [5]	9.4	W/m/K	

Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093
Volume Resistivity	> 1.0E+15	ohms·cm	IEC 60093
Dielectric Constant (1 MHz)	3.80		IEC 60250
Dissipation Factor (1 MHz)	0.022		IEC 60250
Comparative Tracking Index [6]	525	V	IEC 60112

Flammability	Nominal Value	Unit	Test Method
Flame Rating (1.0 mm)	V-0		UL 94

Injection	Nominal Value	Unit
Drying Temperature	180	°C
Drying Time	2.0 to 4.0	hr
Rear Temperature	330 to 360	°C
Middle Temperature	335 to 365	°C
Front Temperature	340 to 370	°C
Injection Zone 4 Temperature	345 to 380	°C
Nozzle Temperature	350 to 380	°C

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Injection	Nominal Value	Unit
Processing (Melt) Temp	350 to 395	°C
Mold Temperature	95 to 175	°C
Injection Rate	Fast	
Back Pressure	< 0.350	MPa