

CoolPoly® D5506

Thermally Conductive Liquid Crystalline Polymer

Description

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.

Physical Properties	Value	Unit	Test Standard
Density	1800	kg/m ³	ISO 1183
Mold Shrinkage – Parallel	0.1	%	ISO 294-4
Mold Shrinkage – Normal	0.3	%	ISO 294-4
Mechanical Properties	Value	Unit	Test Standard
Tensile Modulus	10900	MPa	ISO 527-1
Tensile Strength	50	MPa	ISO 527-1
Strain @ Break	0.7	%	ISO 527-1
Flexural Modulus	12300	MPa	ISO 178
Flexural Strength	84	MPa	ISO 178
Charpy Unnotched (23°C)	6.0	kJ/m ²	ISO 179-1
Charpy Notched (23°C)	3.2	kJ/m ²	ISO 179-1
Electrical Properties	Value	Unit	Test Standard
Surface Resistivity	2.0E14	ohm/square	ASTM D257
Volume Resistivity	1.6E16	ohm - cm	ASTM D257
Dielectric Constant @ 100 MHz	4.5		ASTM D150
Dielectric Constant @ 1 MHz	3.5		ASTM D150
Dissipation Factor @ 100 MHz	0.02		ASTM D150
Dissipation Factor @ 1 MHz	0.002		ASTM D150
Dielectric Strength	46	kV/mm	ASTM D149
Comparative Tracking Index	600	V	ASTM D3638
High Voltage Arc Resistance to Ignition	>300	sec	UL-746A
High Voltage Arc Tracking Rate	DNT		UL-746A
Arc Resistance	300	sec	ASTM D495
Hot Wire Ignition	> 120	sec	ASTM D3874
Thermal Properties	Value	Unit	Test Standard
Thermal Conductivity, In-Plane	10	W/mK	ASTM E1461
Thermal Diffusivity, In-Plane	0.05	cm ² /sec	ASTM E1461
Specific Heat	1.0	J/g°C	ASTM E1461
DTUL @ 1.8 MPa	263	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	> 300	°C	ISO 75-1/-2
CLTE – Parallel (-30°C to +30°C)	6.2	ppm/°C	ASTM D696
CLTE – Normal (-30°C to +30°C)	5.6	ppm/°C	ASTM D696
Flammability	V0 @ 1.0mm		UL 94