Celanese
The chemistry inside innovation™

CoolPoly® D5108

Thermally Conductive Polyphenylene Sulfide (PPS)

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	1820	kg/m^3	ISO 1183
Mold Shrinkage – Parallel	0.2	%	ISO 294-4
Mold Shrinkage – Normal	0.4	%	ISO 294-4
Mechanical Properties	**Value**	**Unit**	**Test Standard**
Tensile Modulus	23600	MPa	ISO 527-1
Tensile Strength	37	MPa	ISO 527-1
Strain @ Break	0.16	%	ISO 527-1
Flexural Modulus	19400	MPa	ISO 178
Flexural Strength	69	MPa	ISO 178
Charpy Unnotched (23°C)	2.50	kJ/m^2	ISO 179-1
Charpy Notched (23°C)	1.10	kJ/m^2	ISO 179-1
Electrical Properties	**Value**	**Unit**	**Test Standard**
Surface Resistivity	4.50E14	ohm/square	ASTM D257
Volume Resistivity	2.50E16	ohm - cm	ASTM D257
Dielectric Constant @ 100 MHz	4.8		ASTM D150
Dielectric Constant @ 1 MHz	3.7		ASTM D150
Dissipation Factor @ 100 MHz	0.022		ASTM D150
Dissipation Factor @ 1 MHz	0.0023		ASTM D150
Dielectric Strength	29	kV/mm	ASTM D149
Comparative Tracking Index	580	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	0.07	cm^2/sec	ASTM E1461
Specific Heat	1.00	J/g°C	ASTM E1461
DTUL @ 1.8 MPa	239	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	276	°C	ISO 75-1/-2
CLTE – Parallel (-30°C to +30°C)	6.5	ppm/°C	ASTM D696
CLTE – Normal (-30°C to +30°C)	5	ppm/°C	ASTM D696
Flammability	V0 @ 1.0mm		UL 94