Celanese
The chemistry inside innovation™

VECTRA® E840i LDS

Liquid Crystal Polymer

40% Mineral filled Laser Direct Structuring grade.
Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant
UL-Listing V-0 in black at 1.5mm thickness per UL 94 flame testing.
UL = Underwriters Laboratories (USA)

Product information

Resin Identification	LCP-MD40	ISO 1043
Part Marking Code	>LCP-MD40<	ISO 11469

Rheological properties

Molding shrinkage, parallel	0.1	%	ISO 294-4, 2577
Molding shrinkage, normal	0.5	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	1.45E6	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	14500	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	3	%	ISO 527-1/-2
Flexural modulus	1.6E6	psi	ISO 178
Flexural strength	17400	psi	ISO 178
Charpy notched impact strength, 23°C	1.9	ftlb/in²	ISO 179/1eA
Izod notched impact strength, 23°C	2.85	ftlb/in²	ISO 180/1A
Izod impact strength, 23°C	15.7	ftlb/in²	ISO 180/1U

Thermal properties

Melting temperature, 10°C/min	635	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	441	°F	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	0.07	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.15	E-4/°F	ISO 11359-1/-2

Electrical properties

Relative permittivity, 100Hz	4.97		IEC 62631-2-1
Relative permittivity, 2GHz	4.08[OT, 1]		IEC 61189-2-721
Relative permittivity, 10GHz	4.01[OT, 2]		IEC 61189-2-721
Dissipation factor, 100Hz	289	E-4	IEC 62631-2-1
Dissipation factor, 2GHz	49[OT, 1]	E-4	IEC 61189-2-721
Dissipation factor, 10GHz	29[OT, 2]	E-4	IEC 61189-2-721
Volume resistivity	2E14	Ohm.m	IEC 62631-3-1
Surface resistivity	2E16	Ohm	IEC 62631-3-2
Electric strength	711	kV/in	IEC 60243-1
Dielectric Constant, 23°C, 10 GHz	4		ASTM D 2520 B / IPC-TM-650
Dissipation Factor, 23°C, 10 GHz	29	E-4	ASTM D 2520 B / IPC-TM-650

[OT]: One time tested
[1]: Black color, tested at 1.9GHz
[2]: Black color

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Physical/Other properties

Humidity absorption, 2mm	0.004	%	Sim. to ISO 62
Water absorption, 2mm	0.011	%	Sim. to ISO 62
Density	0.0653	lb/in³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	302	°F
Drying Time, Dehumidified Dryer	4 - 6	h
Processing Moisture Content	≤0.01	%
Melt Temperature Optimum	644	°F
Min. melt temperature	644	°F
Max. melt temperature	653	°F
Max. screw tangential speed	0.2 - 0.3	m/s
Mold Temperature Optimum	212	°F
Min. mold temperature	176	°F
Max. mold temperature	248	°F
Ejection temperature	572	°F

Characteristics

Processing	Injection Molding
Special characteristics	Flame retardant, Platable, Heat stabilized or stable to heat, Specialty appearance, High Flow, Low Warpage, Laser Direct Structurable

Additional information

Processing Notes

Pre-Drying

VECTRA should in principle be predried. Because of the necessary low maximum residual moisture content the use of dry air dryers is recommended. The dew point should be =< - 40° C. The time between drying and processing should be as short as possible.

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