VECTRA® E820iPd

Liquid Crystal Polymer

Catalytically modified E820i

Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant UL-Listing V-0 in natural at 1.5mm thickness per UL 94 flame testing. Relative-Temperature-Index (RTI) according to UL 746B: electrical 130°C, mechanical 130°C at 1.5mm. UL = Underwriters Laboratories (USA)

Product information

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

Rheological properties

Molding shrinkage, parallel	0.4	%	ISO 294-4, 2577
Molding shrinkage, normal	1.2	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	1.16E6	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	12900	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	3.6	%	ISO 527-1/-2
Flexural modulus	1.28E6	psi	ISO 178
Flexural strength	17400	psi	ISO 178
Flexural strain at failure	3.2	%	ISO 178
Charpy impact strength, 23°C	14.3	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	1.9	ftlb/in²	ISO 179/1eA
Izod notched impact strength, 23°C	1.9	ftlb/in²	ISO 180/1A
Izod impact strength, 23°C	13.3	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	419	°F	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	491	°F	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	246	°F	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	0.13	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.272	E-4/°F	ISO 11359-1/-2

Flammability

Burning Behav. at thickness h	V-0	class	IEC 60695-11-10

Electrical properties

Dissipation factor, 1MHz	163	E-4	IEC 62631-2-1
Comparative tracking index	175		IEC 60112

Physical/Other properties

Density	0.0646	lb/in³	ISO 1183

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Injection

Drying Recommended	yes	
Drying Temperature	338	°F
Drying Time, Dehumidified Dryer	4 - 6	h
Processing Moisture Content	≤0.01	%
Melt Temperature Optimum	644	°F
Min. melt temperature	635	°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
Back pressure	435	psi

Characteristics

Processing	Injection Molding
Special characteristics	Flame retardant, Platable, Heat stabilized or stable to heat, High Flow

Additional information

Injection molding

Preprocessing

Vectra resins are well known for their excellent thermal and hydrolytic stability. In order to ensure these properties are optimum, the resin should be dried correctly prior to processing. Vectra Ei-grades and Vectra V143XL should be dried at 150°C for a minimum of 6 hours or at 170°C for a minimum of 4 hours in a desiccant dryer.

Processing

A three-zone screw evenly divided into feed, compression, and metering zones is preferred. A higher percentage of feed flights may be needed for smaller machines: 1/2 feed, 1/4 compression, 1/4 metering.

Vectra LCPs are shear thinning, their melt viscosity decreases quickly as shear rate increases. For parts that are difficult to fill, the molder can increase the injection velocity to improve melt flow.

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.

Storage

For subsequent storage of the material in the dryer until processed the

temperature does not need to be lowered for grades A, B, C, D and V (<= 24 h).

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