Celanese
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VECTRA® V143XL

Liquid Crystal Polymer

LCP/PPS blend. Maintains most of the characteristics of E130i with improved weldline strength and flatness in certain geometries. 40% glass reinforced.
Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant.

Product information

Resin Identification	(LCP+PPS)-GF40	ISO 1043
Part Marking Code	>(LCP+PPS)-GF40<	ISO 11469

Rheological properties

Moulding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	16000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	130	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.1	%	ISO 527-1/-2
Flexural modulus	16000	MPa	ISO 178
Flexural strength	200	MPa	ISO 178
Charpy notched impact strength, 23°C	8	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	9	kJ/m²	ISO 180/1A
Poisson's ratio	0.33[C]		

[C]: Calculated

Thermal properties

Melting temperature, 10°C/min	335	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	260	°C	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	8	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	31	E-6/K	ISO 11359-1/-2

Electrical properties

Relative permittivity, 1MHz	3.5		IEC 62631-2-1
Dissipation factor, 1MHz	160	E-4	IEC 62631-2-1
Volume resistivity	1E14	Ohm.m	IEC 62631-3-1
Surface resistivity	1E17	Ohm	IEC 62631-3-2
Electric strength	33	kV/mm	IEC 60243-1

Physical/Other properties

Humidity absorption, 2mm	0.015	%	Sim. to ISO 62
Water absorption, 2mm	0.044	%	Sim. to ISO 62
Density	1670	kg/m³	ISO 1183

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Injection

Drying Recommended	yes	
Drying Temperature	150	°C
Drying Time, Dehumidified Dryer	4 - 6	h
Processing Moisture Content	≤0.01	%
Melt Temperature Optimum	340	°C
Min. melt temperature	335	°C
Max. melt temperature	345	°C
Screw tangential speed	0.2 - 0.3	m/s
Mold Temperature Optimum	100	°C
Min. mould temperature	80	°C
Max. mould temperature	120	°C
Back pressure	3	MPa
Ejection temperature	217	°C

Characteristics

Processing	Injection Moulding
Special characteristics	Flame retardant, High Flow, Improved weld line, Lead-free soldering resistant

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).