

Low warp with excellent properties 35% GF/Min modified/reinforced, low warp Vectra LCP grade with excellent properties Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant. UL-Listing V-0 at all color at 0.15mm thickness per UL 94 flame testing. Relative-Temperature-Index (RTI) according to UL 746B: electricals 130°C, mechanicals 130°C. UL = Underwriters Laboratories

Rheological properties

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

Typical mechanical properties

Tensile Modulus	13500	MPa	ISO 527-1/-2
Stress at break, 5mm/min	130	MPa	ISO 527-1/-2
Strain at break, 5mm/min	2.5	%	ISO 527-1/-2
Flexural Modulus	13800	MPa	ISO 178
Flexural Strength	200	MPa	ISO 178
Compressive modulus	11000	MPa	ISO 604
Compressive stress at 1% strain	82	MPa	ISO 604
Charpy impact strength, 23°C	55	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	13	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	16	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	60	kJ/m²	ISO 180/1U
Hardness, Rockwell, M-scale	55		ISO 2039-2
Thermal properties	225	• •	
Tomp of defloction under load 1.9 MPa	000 065	°C	ISO 11357-17-3
Tomp. of deflection under load, 1.6 MPa	200	°C	ISO 75-1/-2
Ball pressure test	220	°C	IEC 60695-10-2
Coeff of linear therm expansion parallel	230	5 F-6/K	ISO 11359-1/-2
Coeff, of linear therm, expansion, parallel	62	E-6/K	ISO 11359-1/-2
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Flammability			
Burning Behav. at thickness h	V-0	class	UL 94
Thickness tested	0.15	mm	UL 94
Glow Wire Flammability Index, 0.4mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 0.75mm	960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	875	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 0.4mm	900	°C	IEC 60695-2-12

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Electrical properties

Relative permittivity, 1MHz Dissipation factor, 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index	3.8 310 1E14 >1E15 53 200	E-4 Ohm.m Ohm kV/mm	IEC 62631-2-1 IEC 62631-2-1 IEC 62631-3-1 IEC 62631-3-2 IEC 60243-1 IEC 60112
Relative permittivity, printed circuits and boards, 2.5 GHz	3.97		IEC 61189-2-721
Relative permittivity, printed circuits and boards, 10 GHz	4.04		IEC 61189-2-721
Dissipation factor, printed circuits and boards, 2.5 GHz	49	E-4	IEC 61189-2-721
Dissipation factor, printed circuits and boards, 10 GHz	45	E-4	IEC 61189-2-721
Other properties			
Humidity absorption, 2mm	0.002	%	Sim. to ISO 62
Water absorption, 2mm	0.015	%	Sim. to ISO 62
Density	1670	kg/m³	ISO 1183
Injection			
Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Screw tangential speed Max. mould temperature Back pressure Injection speed	150 - 170 4 - 6 0.01 350 0.17 - 0.18 80 - 120 3 very fast	°C h % °C m/s °C MPa	Internal

Additional information

Injection molding

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.





Stress-strain



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Secant modulus-strain



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True stress-strain



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Processing Texts	
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.
Longer pre-drying times/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).
Injection molding	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.
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.

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