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VECTRA® C130

Liquid Crystal Polymer

Has the same excellent balance of properties as A130 with higher temperature capability and easier flow. Slightly more dimensional stability in vapor phase soldering than A130. Suitable for some infrared SMT applications. 30% glass reinforced. Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant UL-Listing V-0 in natural and black at 0.38mm thickness per UL 94 flame testing, and UL-5VA in natural at 1.5mm. Relative-Temperature-Index (RTI) according to UL 746B: electrical 240 °C, mechanical 220 °C at 0.75mm. UL = Underwriters Laboratories (USA)

Product information

Resin Identification	LCP-GF30	ISO 1043
Part Marking Code	>LCP-GF30<	ISO 11469

Rheological properties

Moulding shrinkage, parallel	0.2	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.4	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	16000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	160	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.6	%	ISO 527-1/-2
Flexural modulus	15000	MPa	ISO 178
Flexural strength	240	MPa	ISO 178
Compressive modulus	22000	MPa	ISO 604
Compressive stress at 1% strain	124	MPa	ISO 604
Tensile creep modulus, 1h	13600	MPa	ISO 899-1
Tensile creep modulus, 1000h	11700	MPa	ISO 899-1
Charpy notched impact strength, 23 °C	40	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23 °C	29	kJ/m²	ISO 180/1A
Hardness, Rockwell, M-scale	80		ISO 2039-2
Poisson's ratio	0.33[C]		

[C]: Calculated

Thermal properties

Melting temperature, 10 °C/min	325	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	255	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	250	°C	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	211	°C	ISO 75-1/-2
Vicat softening temperature, 50 °C/h 50N	192	°C	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	6	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	18	E-6/K	ISO 11359-1/-2

Flammability

Burning Behav. at thickness h	V-0	class	IEC 60695-11-10
Oxygen index	45	%	ISO 4589-1/-2

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Electrical properties

Relative permittivity, 100Hz	4.2		IEC 62631-2-1
Relative permittivity, 1MHz	3.7		IEC 62631-2-1
Dissipation factor, 100Hz	140	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	180	E-4	IEC 62631-2-1
Volume resistivity	1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	>1E15	Ohm	IEC 62631-3-2
Electric strength	35	kV/mm	IEC 60243-1
Comparative tracking index	200		IEC 60112
Arc Resistance	182	s	UL 746B

Physical/Other properties

Density	1610	kg/m³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	150	°C
Drying Time, Dehumidified Dryer	4 - 6	h
Processing Moisture Content	≤0.01	%
Melt Temperature Optimum	330	°C
Min. melt temperature	320	°C
Max. melt temperature	340	°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

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Special characteristics	Flame retardant, Light stabilised or stable to light, Heat stabilised 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 C-grades should be dried at 150 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

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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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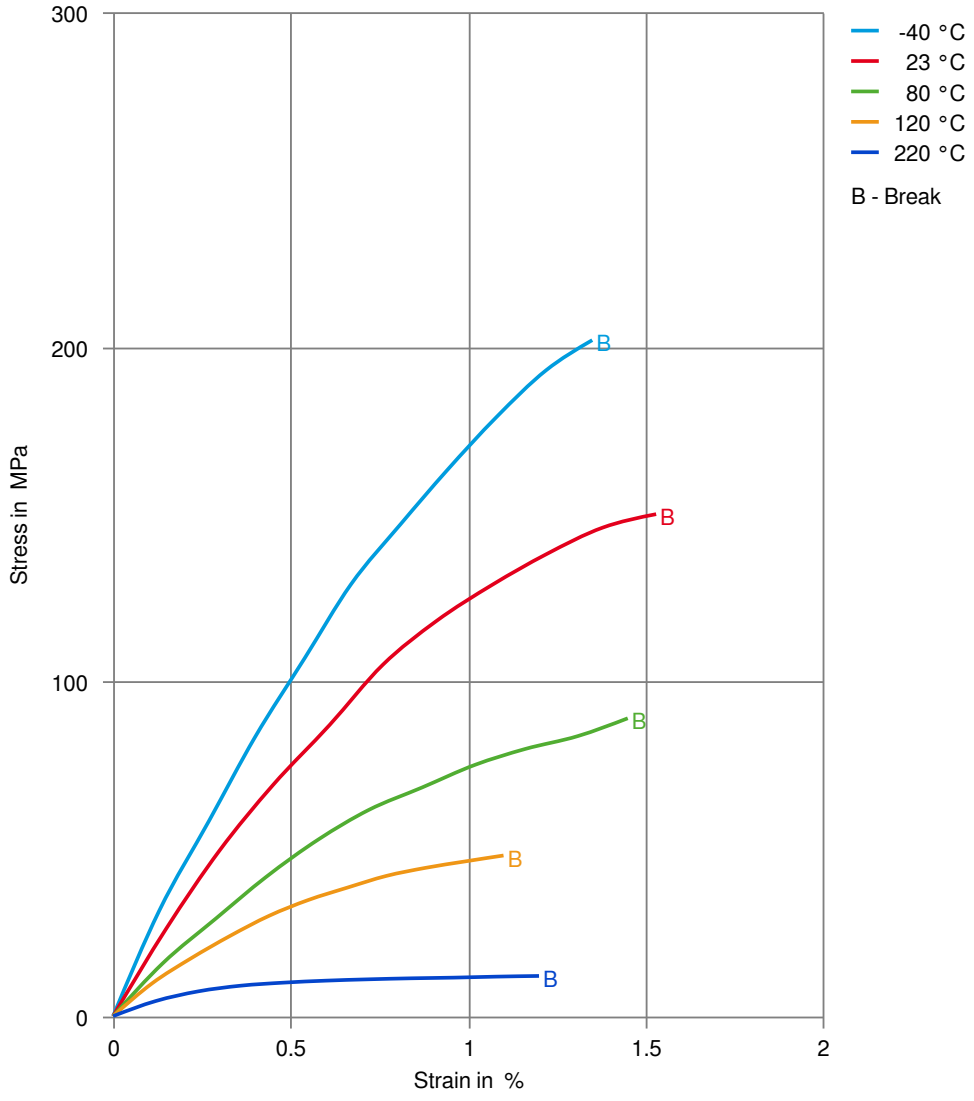
Stress-strain



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Secant modulus-strain