Celanese
The chemistry inside innovation™

VECTRA® A230

Liquid Crystal Polymer

Exceptional stiffness. Electrically conductive. 30% carbon fiber reinforced.
Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant UL-Listing V-0 at 0.43mm thickness per UL 94 flame testing. Relative-Temperature-Index (RTI) according to UL 746B: electrical 130°C, mechanical 130°C. UL = Underwriters Laboratories (USA)

Product information

Resin Identification	LCP-CF30	ISO 1043
Part Marking Code	>LCP-CF30<	ISO 11469

Rheological properties

Moulding shrinkage, parallel	0.1	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.3	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	23500	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	149	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.1	%	ISO 527-1/-2
Flexural modulus	26000	MPa	ISO 178
Flexural strength	230	MPa	ISO 178
Compressive modulus	23500	MPa	ISO 604
Compressive strength	136	MPa	ISO 604
Compressive stress at 1% strain	124	MPa	ISO 604
Tensile creep modulus, 1h	19600	MPa	ISO 899-1
Tensile creep modulus, 1000h	15800	MPa	ISO 899-1
Charpy impact strength, 23°C	13	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	7	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	7	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	18	kJ/m²	ISO 180/1U
Hardness, Rockwell, M-scale	83		ISO 2039-2
Poisson's ratio	0.33[C]		

[C]: Calculated

Thermal properties

Melting temperature, 10°C/min	280	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	233	°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	193	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	179	°C	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	2	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	6	E-6/K	ISO 11359-1/-2

Flammability

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

VECTRA® A230

Liquid Crystal Polymer

Electrical properties

Volume resistivity	1	Ohm.m	IEC 62631-3-1
Surface resistivity	10	Ohm	IEC 62631-3-2

Physical/Other properties

Humidity absorption, 2mm	0.06	%	Sim. to ISO 62
Density	1490	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	290	°C
Min. melt temperature	285	°C
Max. melt temperature	295	°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
Delivery form	Pellets
Special characteristics	Increased electrical conductivity, Static dissipative, Flame retardant, Light stabilised or stable to light, 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 A-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 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. To prevent thermal decomposition, off-

VECTRA® A230

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gassing, and pressure build-up in the barrel, melt temperatures should not exceed 330 °C.

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.

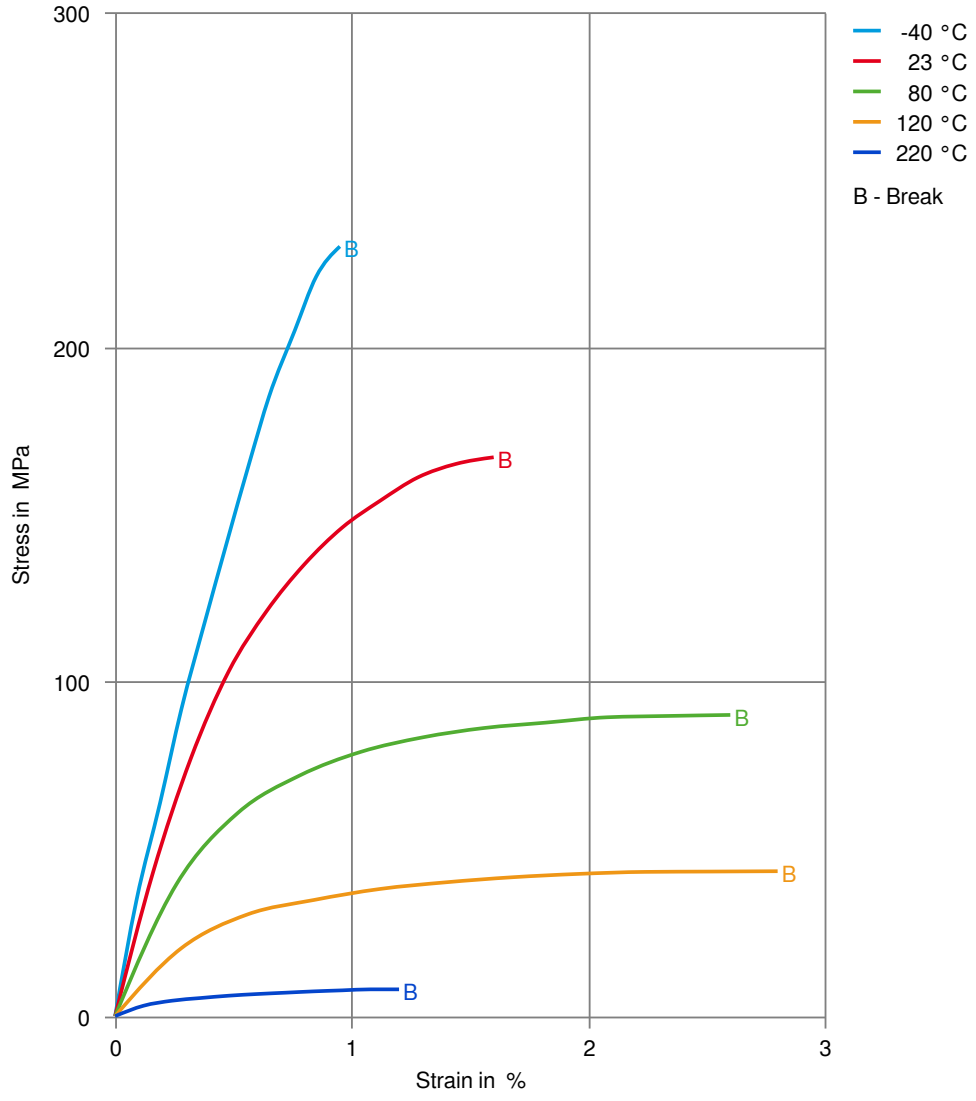
Storage

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).

VECTRA® A230

Liquid Crystal Polymer

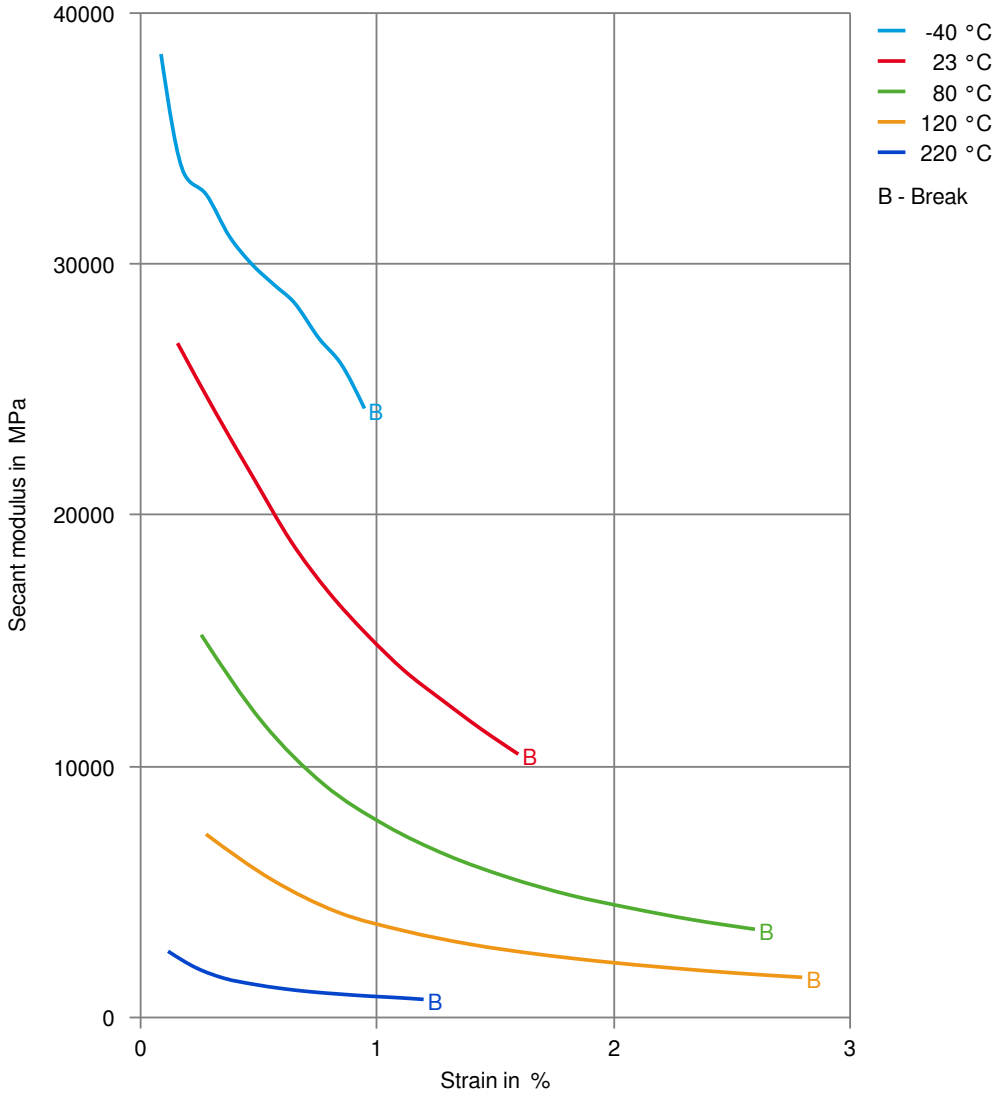
Stress-strain



VECTRA® A230

Liquid Crystal Polymer

Secant modulus-strain



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