Celanese
The chemistry inside innovation™

VECTRA® A625

Liquid Crystal Polymer

Good wear characteristics. 25% graphite filled.
Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant UL-Listing V-0 at 0.45mm 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-CD25	ISO 1043
Part Marking Code	>LCP-CD25<	ISO 11469

Rheological properties

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

Typical mechanical properties

Tensile modulus	9000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	140	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	5.7	%	ISO 527-1/-2
Flexural modulus	10500	MPa	ISO 178
Flexural strength	140	MPa	ISO 178
Compressive modulus	9000	MPa	ISO 604
Compressive stress at 1% strain	72.4	MPa	ISO 604
Tensile creep modulus, 1h	9800	MPa	ISO 899-1
Tensile creep modulus, 1000h	7500	MPa	ISO 899-1
Charpy impact strength, 23 °C	67	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23 °C	11	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23 °C	22	kJ/m²	ISO 180/1A
Izod impact strength, 23 °C	62	kJ/m²	ISO 180/1U
Hardness, Rockwell, M-scale	62		ISO 2039-2
Poisson's ratio	0.34[C]		

[C]: Calculated

Thermal properties

Melting temperature, 10 °C/min	280	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	185	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	225	°C	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	114	°C	ISO 75-1/-2
Vicat softening temperature, 50 °C/h 50N	159	°C	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	9	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	30	E-6/K	ISO 11359-1/-2
Thermal conductivity, flow	3.68	W/(m K)	ISO 22007-2
Thermal conductivity, crossflow	2.11	W/(m K)	ISO 22007-2
Thermal conductivity, through plane	0.69	W/(m K)	ISO 22007-2
Effective thermal diffusivity, flow	0.000002	m²/s	ISO 22007-4
Effective thermal diffusivity, crossflow	0.000001	m²/s	ISO 22007-4
Effective thermal diffusivity, through plane	3.3E-7	m²/s	ISO 22007-4
Specific heat capacity of melt	1350	J/(kg K)	ISO 22007-4

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Flammability

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

Electrical properties

Relative permittivity, 100Hz	30		IEC 62631-2-1
Relative permittivity, 1MHz	13		IEC 62631-2-1
Dissipation factor, 100Hz	400	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	1500	E-4	IEC 62631-2-1
Volume resistivity	1E14	Ohm.m	IEC 62631-3-1
Surface resistivity	1E11	Ohm	IEC 62631-3-2
Comparative tracking index	200		IEC 60112

Physical/Other properties

Humidity absorption, 2mm	0.03	%	Sim. to ISO 62
Density	1540	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	285	°C
Min. melt temperature	285	°C
Max. melt temperature	290	°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, Low wear / Low friction, 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

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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).

Automotive

OEM	STANDARD
Continental	TST N 055 72.03-001

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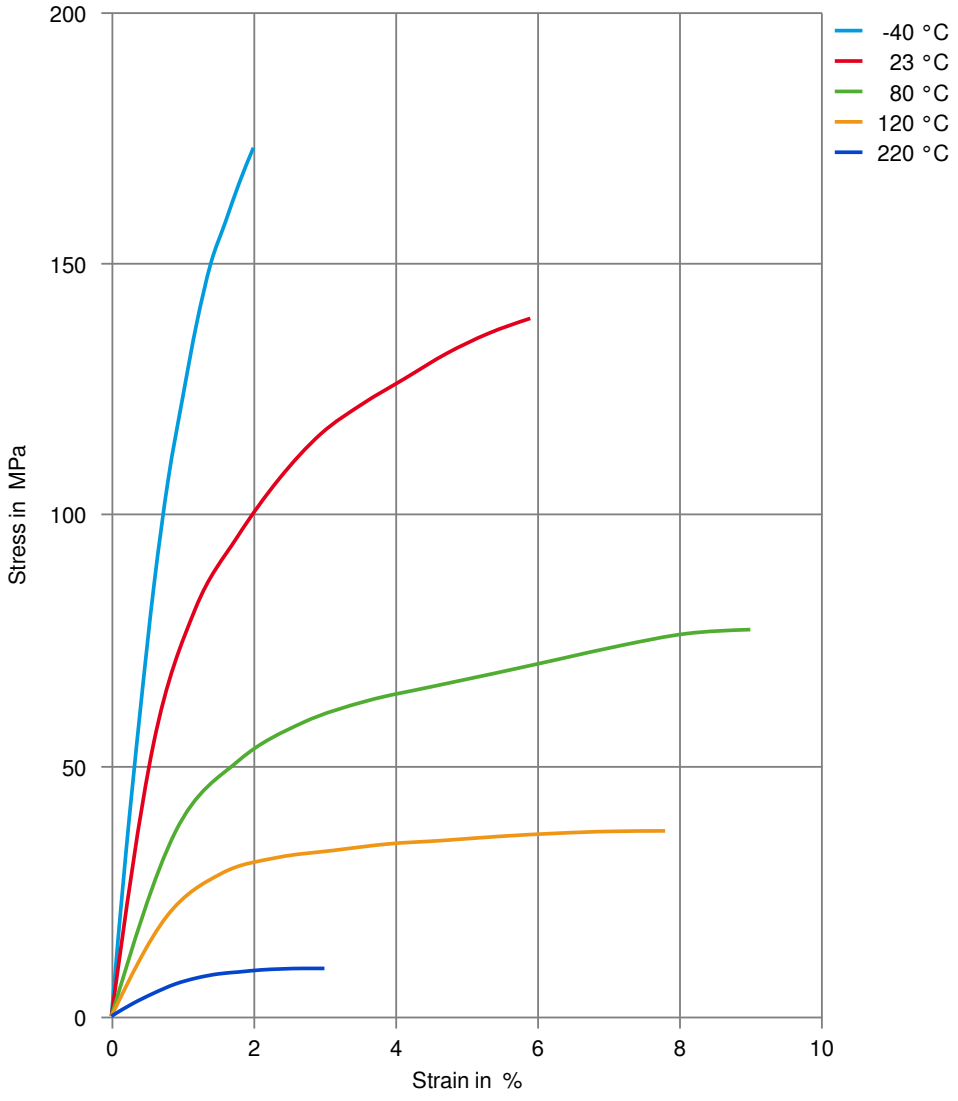
Stress-strain



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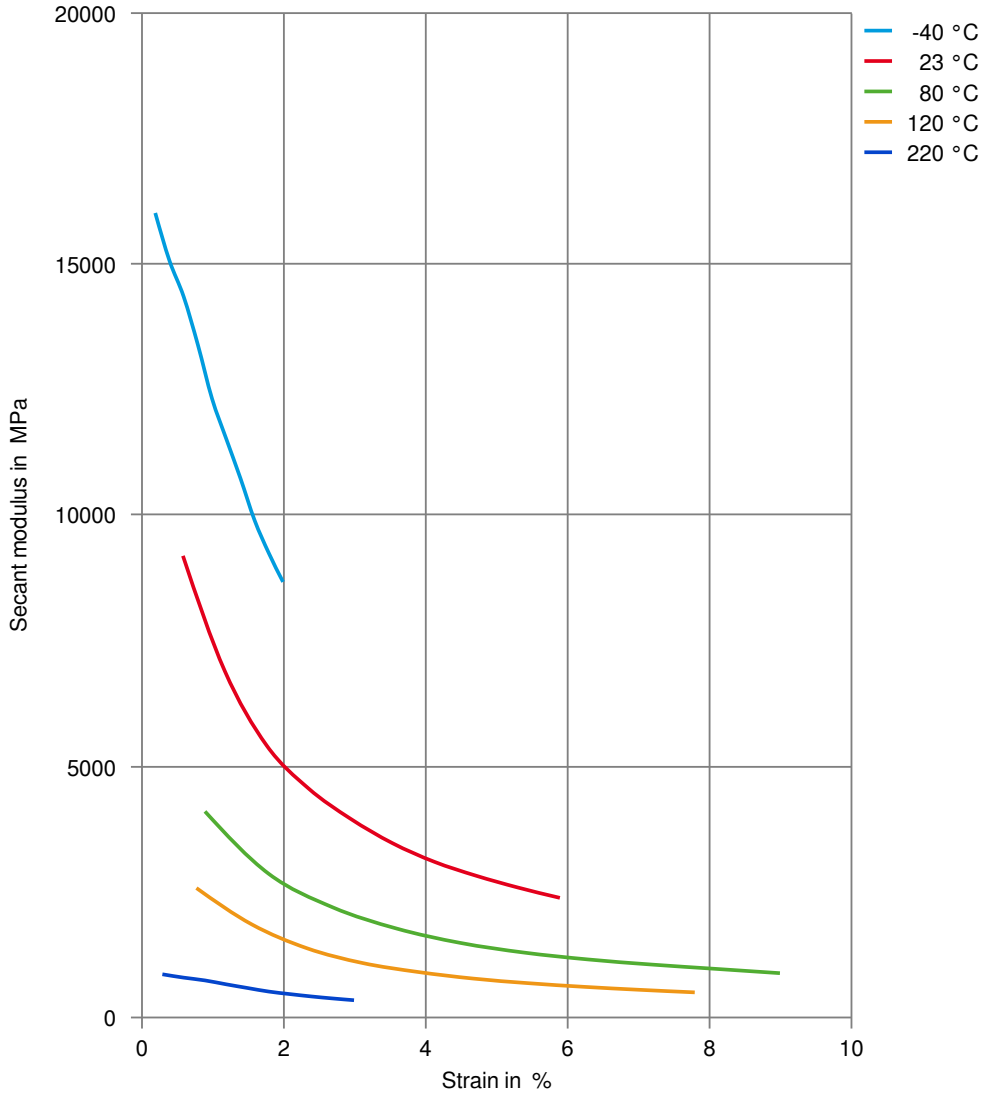
Secant modulus-strain



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