Celanese
The chemistry inside innovation™

VECTRA® B230

30% carbon fiber, exceptional strength and stiffness, conductive
Exceptional strength and stiffness. Suitable for metal replacement applications. Electrically conductive. 30% carbon fiber reinforced.
Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant
UL-Listing V-0 at 0.46mm thickness per UL 94 flame testing. Relative-Temperature-Index (RTI) according to UL 746B: electrical 130°C, mechanical 130°C. UL = Underwriters Laboratories (USA)

Rheological properties

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

Typical mechanical properties

Tensile Modulus	31800	MPa	ISO 527-1/-2
Stress at break, 5mm/min	200	MPa	ISO 527-1/-2
Strain at break, 5mm/min	0.7	%	ISO 527-1/-2
Flexural Modulus	25500	MPa	ISO 178
Flexural Strength	300	MPa	ISO 178
Compressive modulus	33000	MPa	ISO 604
Compressive stress at 1% strain	204	MPa	ISO 604
Charpy impact strength, 23°C	15	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	6	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	6	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	12	kJ/m²	ISO 180/1U
Hardness, Rockwell, M-scale	99		ISO 2039-2

Thermal properties

Melting temperature, 10°C/min	280	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	235	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	250	°C	ISO 75-1/-2
Temp. of deflection under load, 8 MPa	186	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel	1	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	9	E-6/K	ISO 11359-1/-2

Flammability

Burning Behav. at thickness h	V-0	class	UL 94

Electrical properties

Relative permittivity, 1MHz	32		IEC 62631-2-1
Volume resistivity	1000	Ohm.m	IEC 62631-3-1
Surface resistivity	100	Ohm	IEC 62631-3-2

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Other properties

Density	1500	kg/m³	ISO 1183

Injection

Drying Temperature	150	°C
Drying Time, Dehumidified Dryer	6 - 8	h
Processing Moisture Content	0.01	%
Screw tangential speed	0.17 - 0.18	m/s
Max. mould temperature	80 - 120	°C
Back pressure	3	MPa
Injection speed	very fast	

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.

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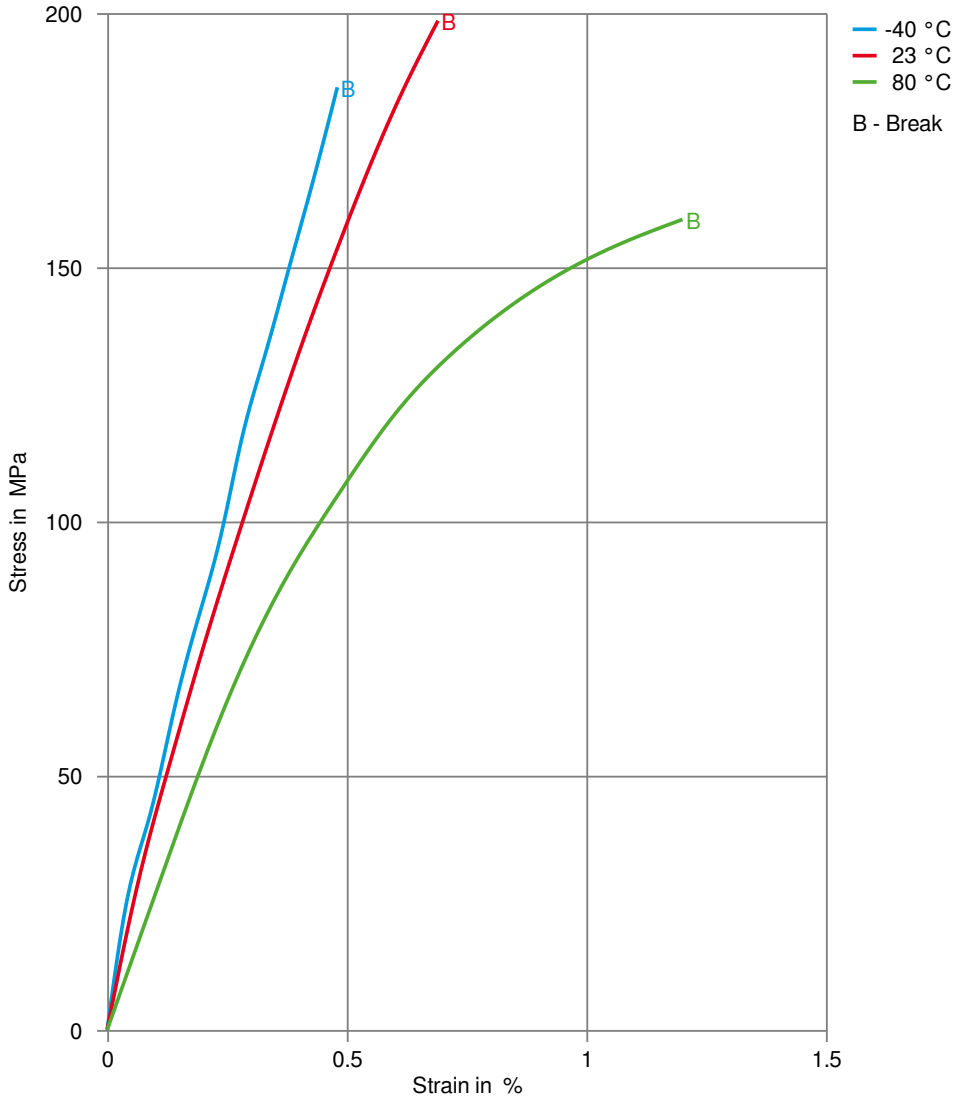
Stress-strain



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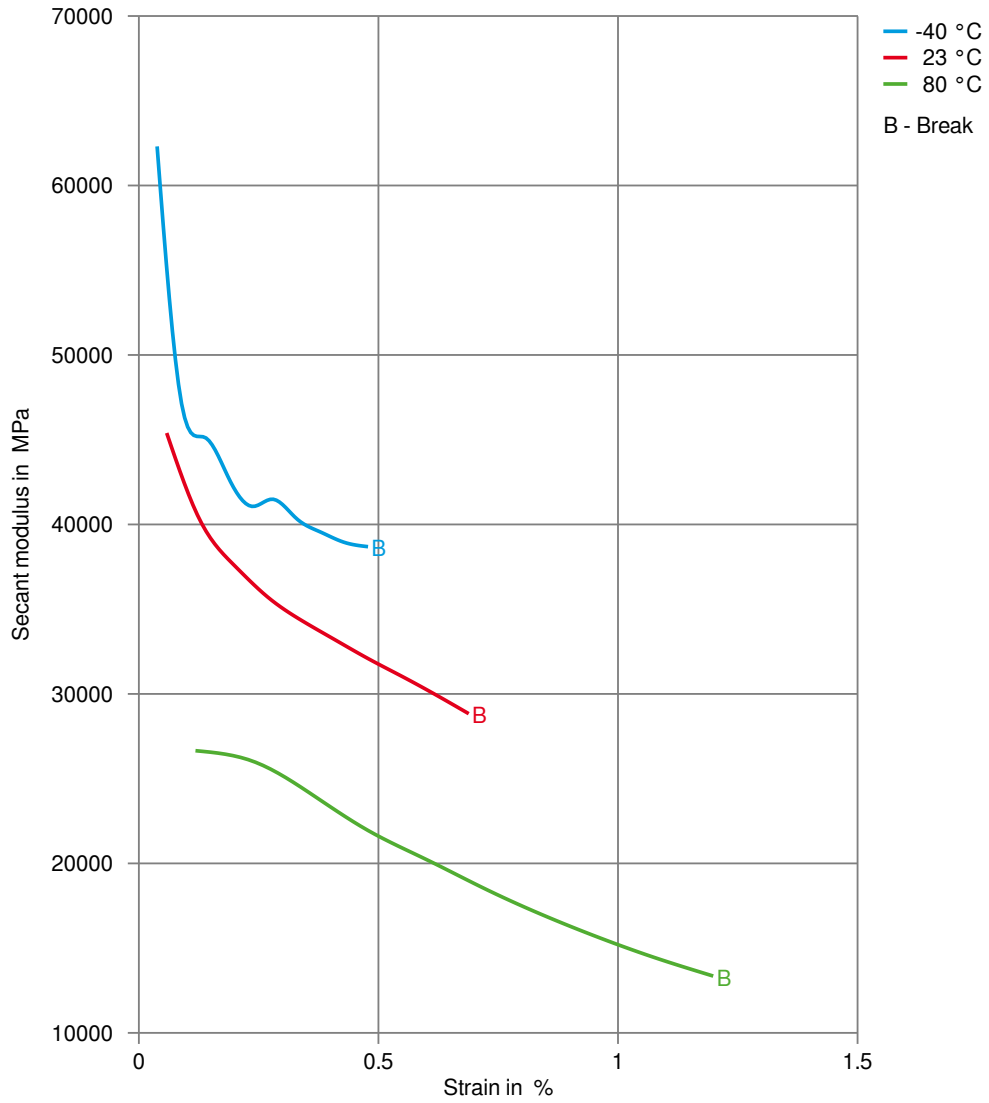
Secant modulus-strain



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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 B-grades should be dried at 150 C for a minimum of 6 hours in a desiccant dryer.