Celanese
The chemistry inside innovation™

VECTRA® E130i

30% glass fiber, excellent flow, high temperature capability
High temperature capability, easiest flow. Suitable where very thin walls are required. Used for broad range of SMT applications, with minimal dimensional change. 30% glass filled.
Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant FDA compliant UL-Listing V-0 in natural and black at .2mm thickness per UL 94 flame testing. Relative-Temperature-Index (RTI) according to UL 746B: electrical 240°C, mechanical 240°C at 0.75mm. UL = Underwriters Laboratories (USA)

Rheological properties

Moulding shrinkage range, parallel	0.1	%	ISO 294-4, 2577
Moulding shrinkage range, normal	0.4	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	16000	MPa	ISO 527-1/-2
Stress at break, 5mm/min	160	MPa	ISO 527-1/-2
Strain at break, 5mm/min	1.6	%	ISO 527-1/-2
Flexural Modulus	15000	MPa	ISO 178
Flexural Strength	220	MPa	ISO 178
Compressive modulus	14000	MPa	ISO 604
Compressive stress at 1% strain	93	MPa	ISO 604
Charpy impact strength, 23°C	43	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	38	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	27	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	31	kJ/m²	ISO 180/1U
Hardness, Rockwell, M-scale	71		ISO 2039-2

Thermal properties

Melting temperature, 10°C/min	335	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	270	°C	ISO 75-1/-2
Temp. of deflection under load, 8 MPa	216	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel	7	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	20	E-6/K	ISO 11359-1/-2

Flammability

Burning Behav. at thickness h	V-0	class	UL 94
Oxygen index	45	%	ISO 4589-1/-2

Electrical properties

Relative permittivity, 100Hz	4		IEC 62631-2-1
Relative permittivity, 1MHz	3.9		IEC 62631-2-1
Dissipation factor, 100Hz	100	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	360	E-4	IEC 62631-2-1
Dissipation factor, 1GHz	60	E-4	IEC 62631-2-1
Volume resistivity	1E13	Ohm.m	IEC 62631-3-1

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Surface resistivity	1E14	Ohm	IEC 62631-3-2
Electric strength	32	kV/mm	IEC 60243-1
Comparative tracking index	PLC 4	PLC	UL 746A
Arc Resistance	140	s	Internal
Relative permittivity, printed circuits and boards, 2.5 GHz	3.9		IEC 61189-2-721
Dissipation factor, printed circuits and boards, 2.5 GHz	60	E-4	IEC 61189-2-721

Other properties

Humidity absorption, 2mm	0.03	%	Sim. to ISO 62
Density	1610	kg/m³	ISO 1183
Bulk density	710	kg/m³	ISO 60

Injection

Drying Temperature	150 - 170	°C	
Drying Time, Dehumidified Dryer	4 - 6	h	
Processing Moisture Content	0.01	%	
Melt Temperature Optimum	340	°C	Internal
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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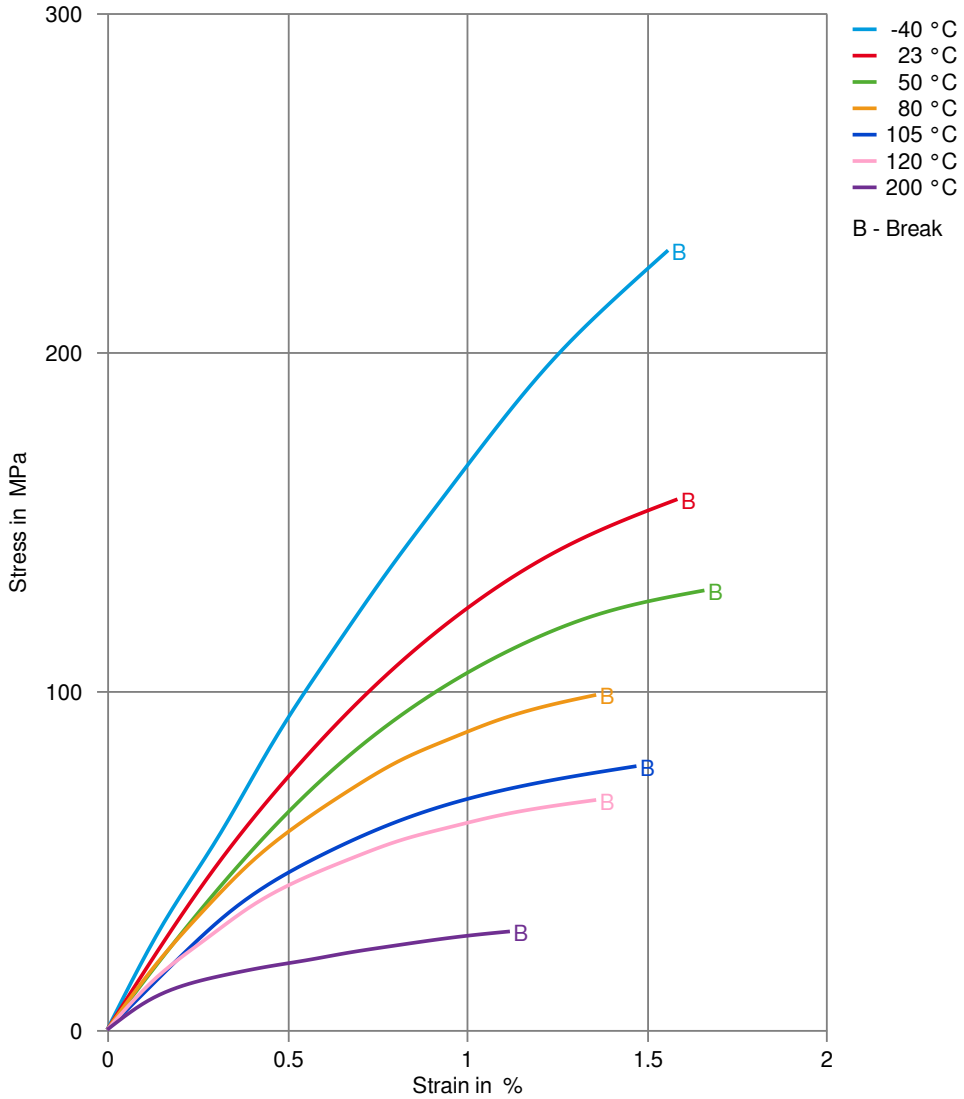
Stress-strain



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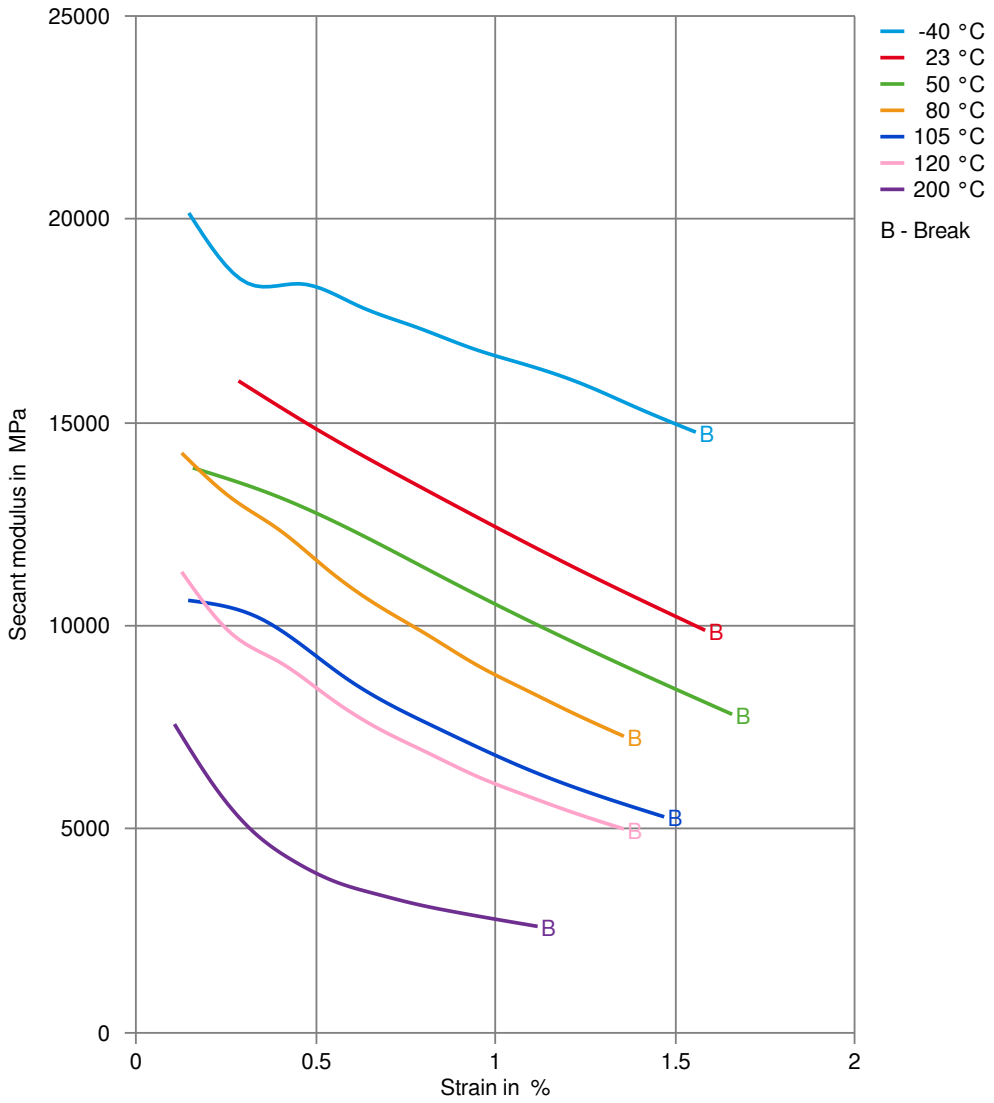
Secant modulus-strain



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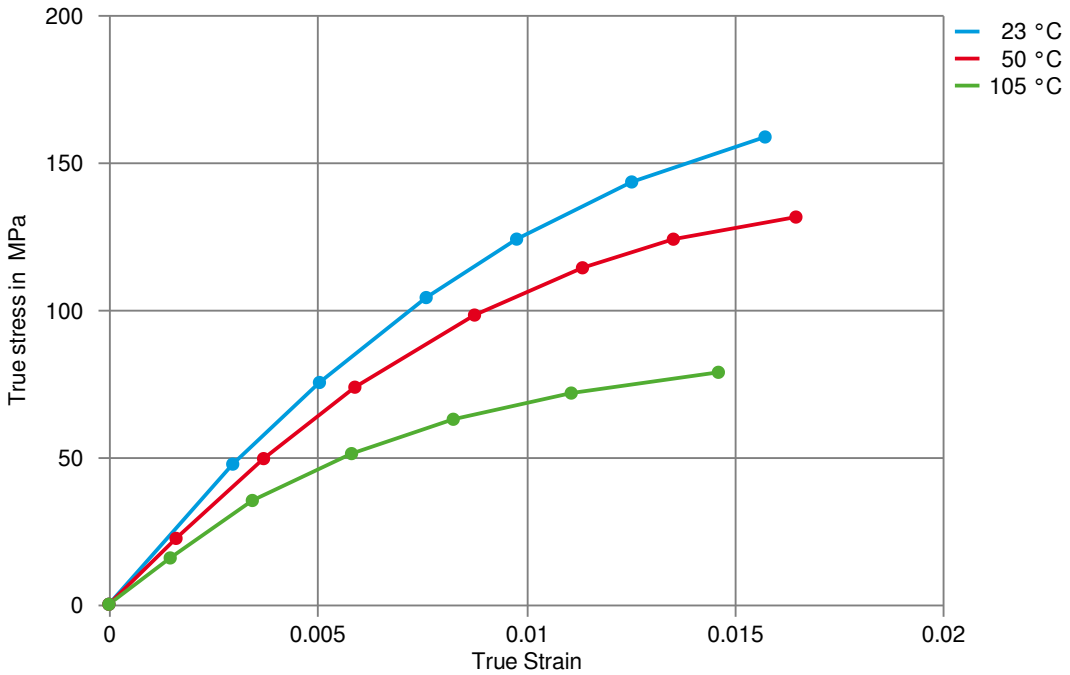
True stress-strain



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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.

Other Approvals

Other Approvals

OEM	Specification	Additional Information
Bosch	N28 BN35-X001	Natural & Black
Hyundai	MS941-03, Type P-2	FRVO
Stellantis - PSA Group	PMP E&E	