

# VECTRA® A115

15% glass fiber, provides easier flow than A130, Tougher

Provides easier flow than A130. Slightly tougher, but may warp slightly more than A130 in some parts. 15% glass reinforced.

Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant FDA compliant UL-Listing V-0 in natural and black at 0.44mm thickness per UL 94 flame testing. Relative-Temperature-Index (RTI) according to UL 746B: electricals 240 °C, mechanicals 220 °C at 0.85mm. 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	12000 MPa	ISO 527-1/-2
Stress at break, 5mm/min	200 MPa	ISO 527-1/-2
Strain at break, 5mm/min	3.1 %	ISO 527-1/-2
Flexural Modulus	12600 MPa	ISO 178
Flexural Strength	240 MPa	ISO 178
Compressive modulus	10000 MPa	ISO 604
Compressive stress at 1% strain	85 MPa	ISO 604
Charpy notched impact strength, 23 °C	70 kJ/m <sup>2</sup>	ISO 179/1eA
Izod notched impact strength, 23 °C	50 kJ/m <sup>2</sup>	ISO 180/1A
Izod impact strength, 23 °C	61 kJ/m <sup>2</sup>	ISO 180/1U
Hardness, Rockwell, M-scale	80	ISO 2039-2

## Thermal properties

Melting temperature, 10 °C/min	280 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	230 °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	157 °C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel	10 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	18 E-6/K	ISO 11359-1/-2

## Flammability

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

Relative permittivity, 100Hz	3.5	IEC 62631-2-1
Relative permittivity, 1MHz	3	IEC 62631-2-1
Dissipation factor, 100Hz	200 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	34 kV/mm	IEC 60243-1
Comparative tracking index	PLC 3 PLC	UL 746A



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Arc Resistance	135 s	Internal
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## Other properties

Humidity absorption, 2mm	0.003 %	Sim. to ISO 62
Water absorption, 2mm	0.006 %	Sim. to ISO 62
Density	1500 kg/m <sup>3</sup>	ISO 1183

## Injection

Drying Temperature	150 °C	
Drying Time, Dehumidified Dryer	4 - 6 h	
Processing Moisture Content	0.01 %	
Melt Temperature Optimum	290 °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

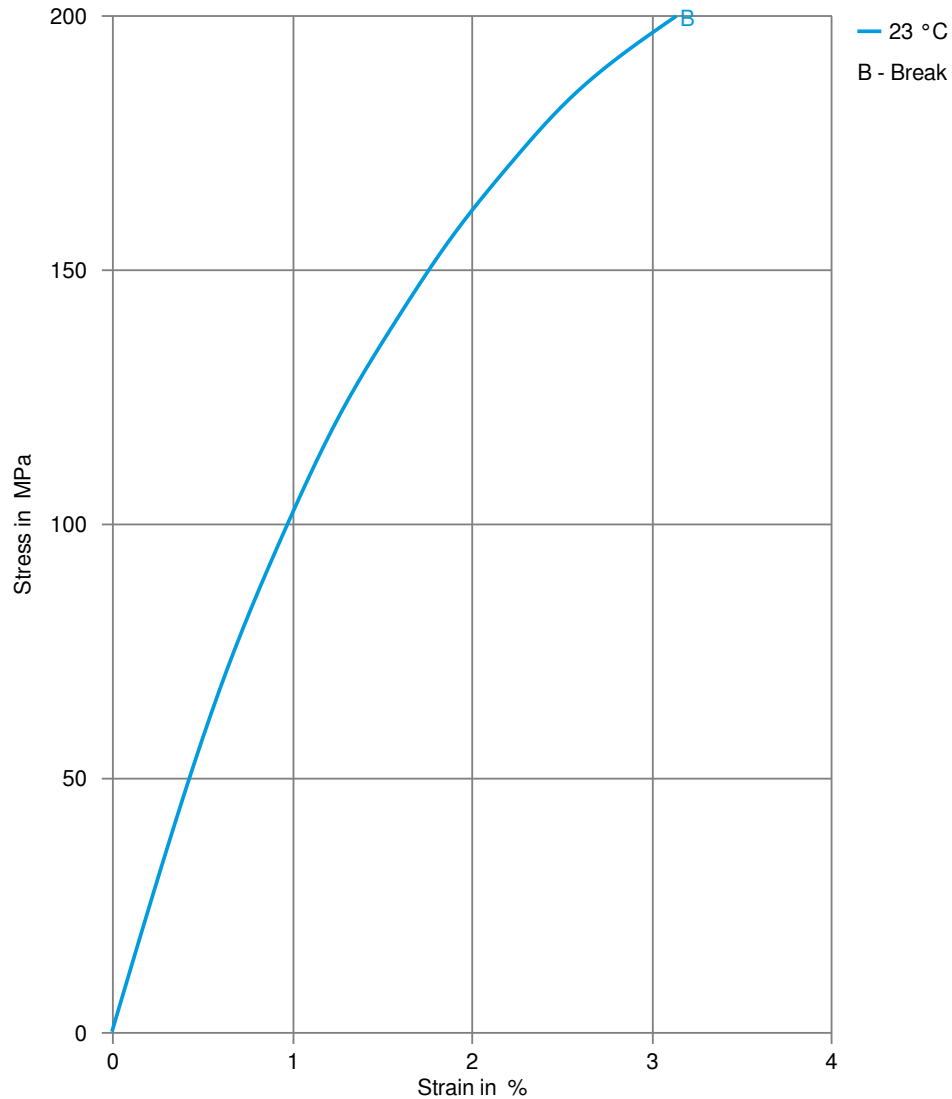
A three-zone screw evenly divided into feed, compression, and metering zones is preferred. A higher percentage of feed flights may be needed for smaller machines: 1/2 feed, 1/4 compression, 1/4 metering.

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.



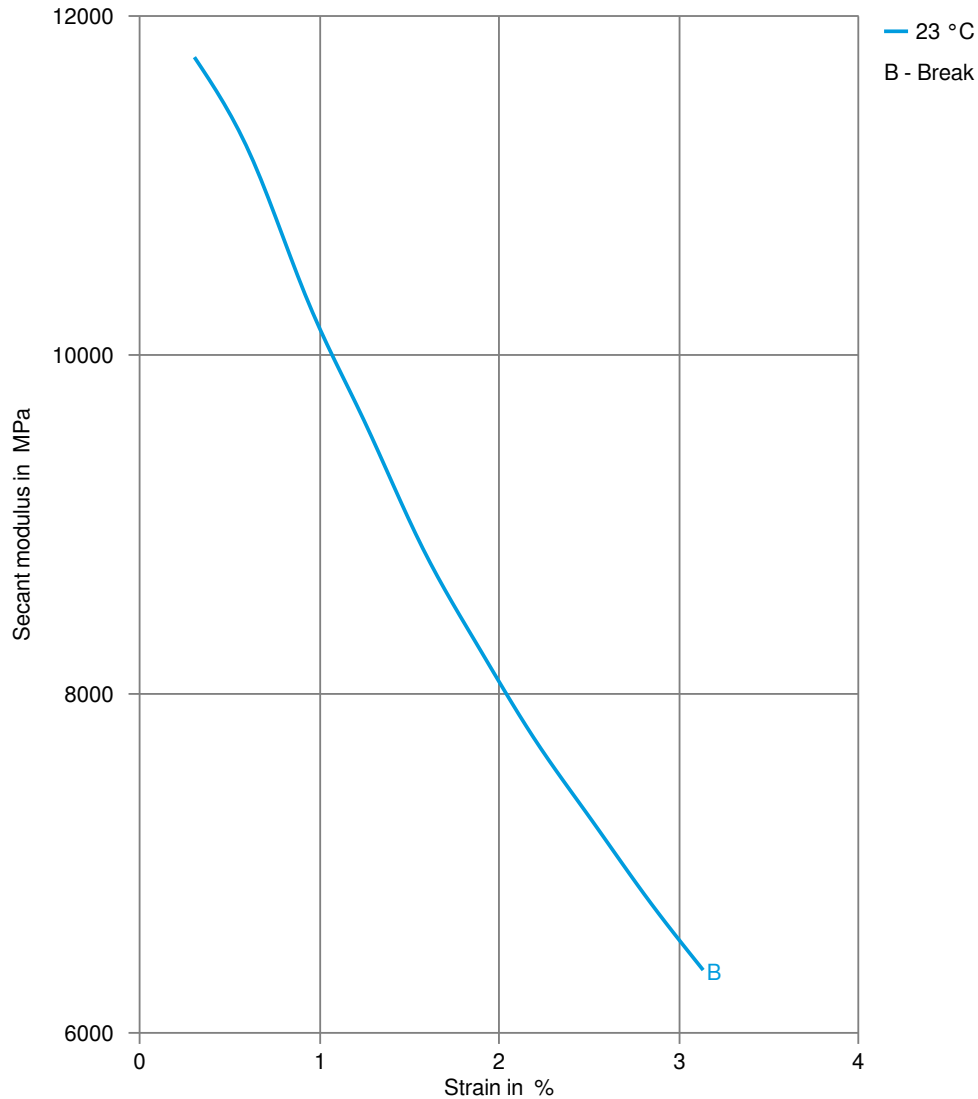
# VECTRA® A115

## Stress-strain



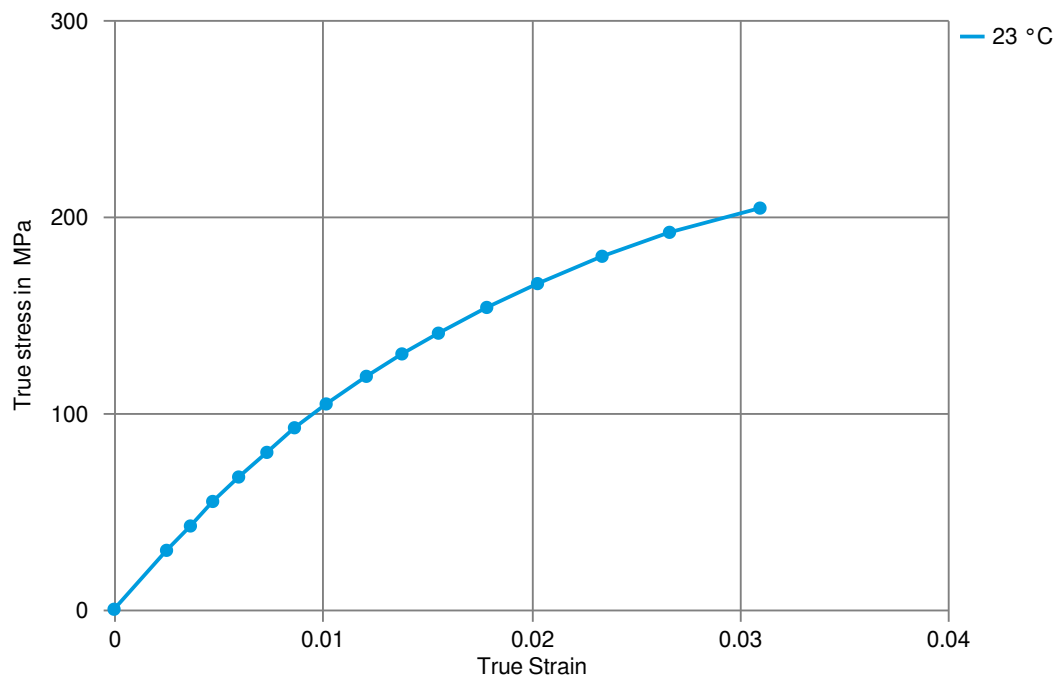
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## Secant modulus-strain



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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  $\leq -40^{\circ}\text{C}$ . 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 ( $\leq 24\text{ h}$ ).

### 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 A-grades should be dried at  $150^{\circ}\text{C}$  for a minimum of 4 hours in a desiccant dryer.

