Celanese
The chemistry inside innovation™

VECTRA® S471

High temperature glass-fiber/mineral grade for fine pitch applications.
High flow, High Heat resistance, Low Warpage, for Thick Walled (>0.2mm) or thin (< 0.2mm)& Thick Walled combination parts.
Chemical abbreviation according to ISO 1043-1 : LCP Inherently flame retardant
UL-Listing V-0 in natural and black at 0.4mm thickness per UL 94 flame testing. Relative-Temperature-Index (RTI) according to UL 746B: electricals 130°C, mechanicals 130°C. UL = Underwriters Laboratories (USA)

Rheological properties

Moulding shrinkage range, parallel	0.2	%	ISO 294-4, 2577
Moulding shrinkage range, normal	0.5	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	13000	MPa	ISO 527-1/-2
Stress at break, 5mm/min	110	MPa	ISO 527-1/-2
Strain at break, 5mm/min	1.1	%	ISO 527-1/-2
Flexural Modulus	14000	MPa	ISO 178
Flexural Strength	170	MPa	ISO 178
Charpy impact strength, 23°C	10	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	5	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	7	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	5	kJ/m²	ISO 180/1A

Thermal properties

Melting temperature, 10°C/min	350	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	315	°C	ISO 75-1/-2
Temp. of deflection under load, 8 MPa	271	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel	8	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	17	E-6/K	ISO 11359-1/-2

Flammability

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

Electrical properties

Relative permittivity, 1MHz	4		IEC 62631-2-1
Dissipation factor, 1MHz	70	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
Comparative tracking index	PLC 3	PLC	UL 746A

VECTRA® S471

Other properties

Density	1760	kg/m³	ISO 1183

Injection

Drying Temperature	150 - 170	°C	
Drying Time, Dehumidified Dryer	6	h	
Melt Temperature Optimum	370	°C	Internal
Max. mould temperature	80 - 120	°C	
Back pressure	3	MPa	
Injection speed	medium		

Additional information

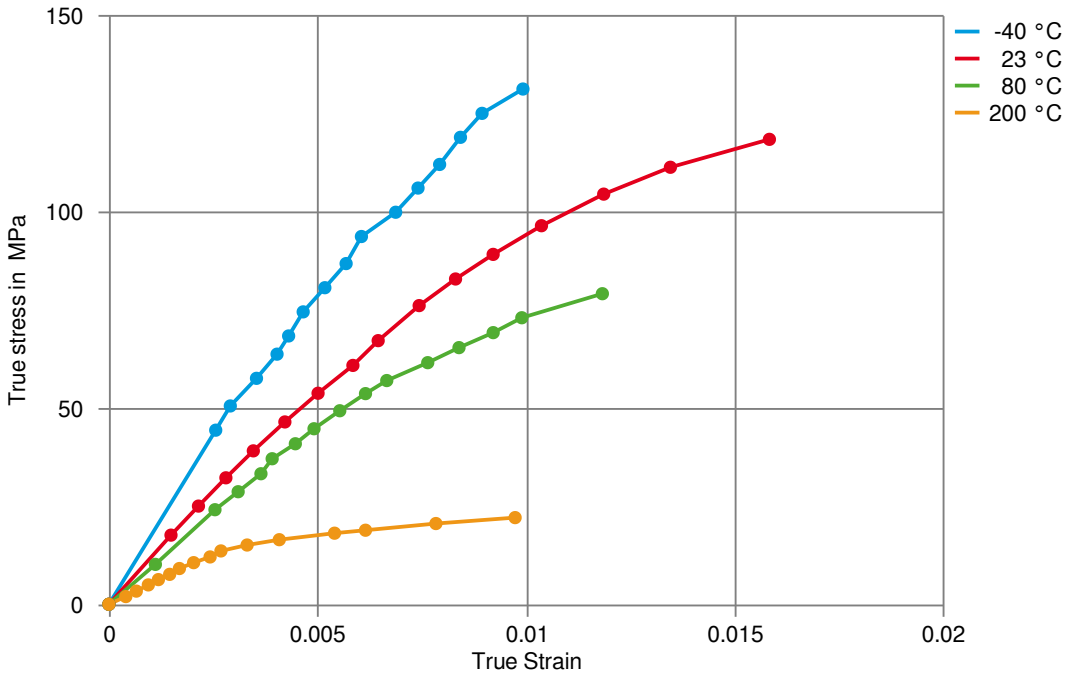
Injection molding

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: ½ feed, ¼ compression, ¼ 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® S471

True stress-strain



VECTRA® S471

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: ½ feed, ¼ compression, ¼ 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 S-grades 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.