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ZENITE® 15115

Liquid Crystal Polymer

ZENITE 15115 is a high flow 15% glass filled LCP resin with high temperature capability, excellent balance of properties and processability.

Product information

Resin Identification	LCP-GF15	ISO 1043
Part Marking Code	>LCP-GF15<	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	13000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	160	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.5	%	ISO 527-1/-2
Flexural modulus	11500	MPa	ISO 178
Flexural strength	200	MPa	ISO 178
Compressive modulus	11000	MPa	ISO 604
Compressive stress at 1% strain	82	MPa	ISO 604
Charpy impact strength, 23°C	42	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	34	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	30	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	34	kJ/m²	ISO 180/1U
Poisson's ratio	0.33[C]		

[C]: Calculated

Thermal properties

Melting temperature, 10°C/min	325	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	250	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	250	°C	ISO 75-1/-2
Temperature of deflection under load, 8 MPa	177	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	176	°C	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	3	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	22	E-6/K	ISO 11359-1/-2

Electrical properties

Relative permittivity, 100Hz	3.5		IEC 62631-2-1
Relative permittivity, 1MHz	3.1		IEC 62631-2-1
Dissipation factor, 100Hz	300	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	200	E-4	IEC 62631-2-1
Volume resistivity	1E12	Ohm.m	IEC 62631-3-1
Surface resistivity	>1E15	Ohm	IEC 62631-3-2
Electric strength	35	kV/mm	IEC 60243-1
Comparative tracking index	150		IEC 60112
Arc Resistance	135	s	UL 746B

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Physical/Other properties

Density	1500	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	330	°C
Min. melt temperature	320	°C
Max. melt temperature	340	°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, Heat stabilised or stable to heat, High Flow

Additional information

Injection molding

Preprocessing

ZENITE 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. ZENITE grades should be dried at 150 C for a minimum of 4 hours in a desiccant dryer.

Processing

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.

ZENITE 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

ZENITE resins 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.

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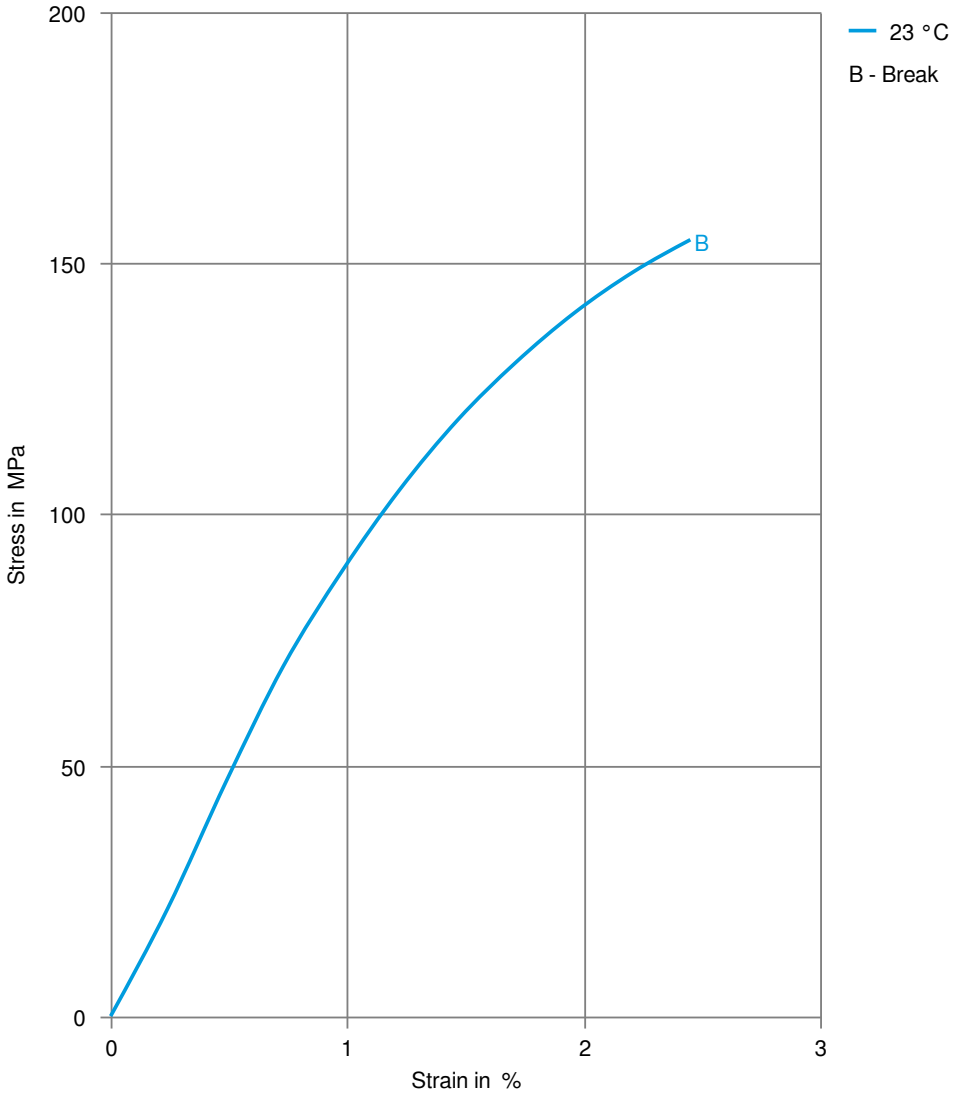
Stress-strain



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Secant modulus-strain