Zytel® SC315 NC010

LONG CHAIN POLYAMIDE RESIN

Zytel® SC315 NC010 is an unreinforced, lubricated 612 polyamide suitable for injection molding. It has been developed for applications such as parts for the healthcare industry.

SPECIAL CONTROL for HEALTHCARE APPLICATIONS

This product is manufactured according to Good Manufacturing Practice (GMP) principles and generally accepted in food contact applications in Europe and the USA when meeting applicable use conditions. This product is also tested against ISO 10993-5 and -11 and selected parts of USP Class VI. For details, individual compliance statements are available from our representative.

Product information

Resin Identification	PA612	ISO 1043
Part Marking Code	>PA612<	ISO 11469
ISO designation	ISO 16396-PA612,,M1G1NR,S10-020	

Rheological properties

	dry/cond.		
Viscosity number	95[1]/*	cm³/g	ISO 307, 1628
Moulding shrinkage, parallel	1.3/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.4/-	%	ISO 294-4, 2577

[1]: sulphuric acid 96%

Typical mechanical properties

	dry/cond.		
Tensile modulus	2400/1700	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	62/54	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4.5/18	%	ISO 527-1/-2
Nominal strain at break	17/>50	%	ISO 527-1/-2
Flexural modulus	2100/1440	MPa	ISO 178
Charpy impact strength, 23°C	N/N	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	N/40	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	3.5/4	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	3.5/3	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	4/4.5	kJ/m²	ISO 180/1A
Izod notched impact strength, -30°C	4.5/3.0	kJ/m²	ISO 180/1A
Hardness, Rockwell, R-scale	114/-		ISO 2039-2
Poisson's ratio	0.38/0.42		

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	218/*	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	55/45	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	62/*	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	135/*	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	181/*	°C	ISO 306
Coeff. of linear therm. expansion, parallel, -40-23°C	90/*	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	110/*	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	160/*	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	90/*	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE),			

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normal

120 / *	E-6/K	ISO 11359-1/-2

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Coeff. of linear therm. expansion, normal, 55-160 °C	180 / *	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.18	W/(m K)	ISO 22007-2
Specific heat capacity of melt	2750	J/(kg K)	ISO 22007-4

Flammability

	dry/cond.		
Oxygen index	27 / *	%	ISO 4589-1/-2

Electrical properties

	dry/cond.		
Relative permittivity, 100Hz	3.6 / 5.1		IEC 62631-2-1
Relative permittivity, 1MHz	3.2 / 4		IEC 62631-2-1
Dissipation factor, 100Hz	135 / 700	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	160 / 400	E-4	IEC 62631-2-1
Volume resistivity	1E13 / 1E11	Ohm.m	IEC 62631-3-1
Electric strength	30 / 30	kV/mm	IEC 60243-1
Comparative tracking index	600 / -		IEC 60112
Electric Strength, Short Time, 2mm	22 / 21	kV/mm	IEC 60243-1

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1.3 / *	%	Sim. to ISO 62
Water absorption, 2mm	3 / *	%	Sim. to ISO 62
Density	1060 / -	kg/m³	ISO 1183
Density of melt	900	kg/m³	

VDA Properties

Emission of organic compounds	3.1	µgC/g	VDA 277

Injection

Drying Recommended	yes	
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.15	%
Melt Temperature Optimum	260	°C
Min. melt temperature	230	°C
Max. melt temperature	290	°C
Mold Temperature Optimum	65	°C
Min. mould temperature	40	°C
Max. mould temperature	95	°C
Hold pressure range	50 - 100	MPa
Hold pressure time	4	s/mm
Ejection temperature	180	°C

Extrusion

Drying Temperature	≤80	°C
Drying Time, Dehumidified Dryer	3 - 4	h
Processing Moisture Content	≤0.06	%
Melt Temperature Optimum	240	°C
Melt Temperature Range	235 - 250	°C

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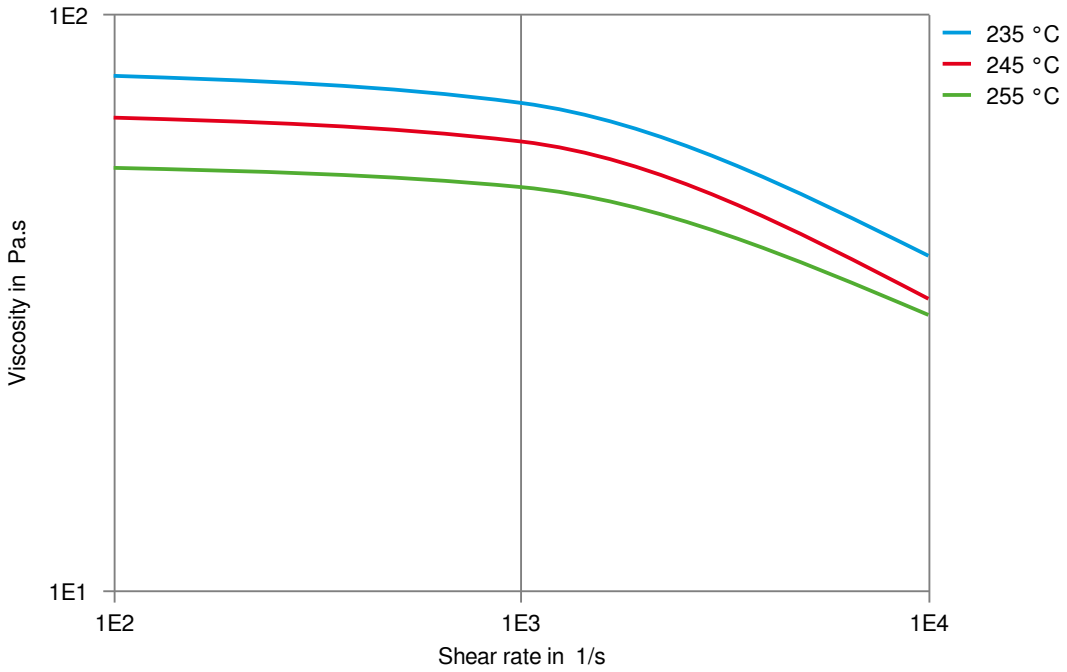
Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent

Viscosity-shear rate



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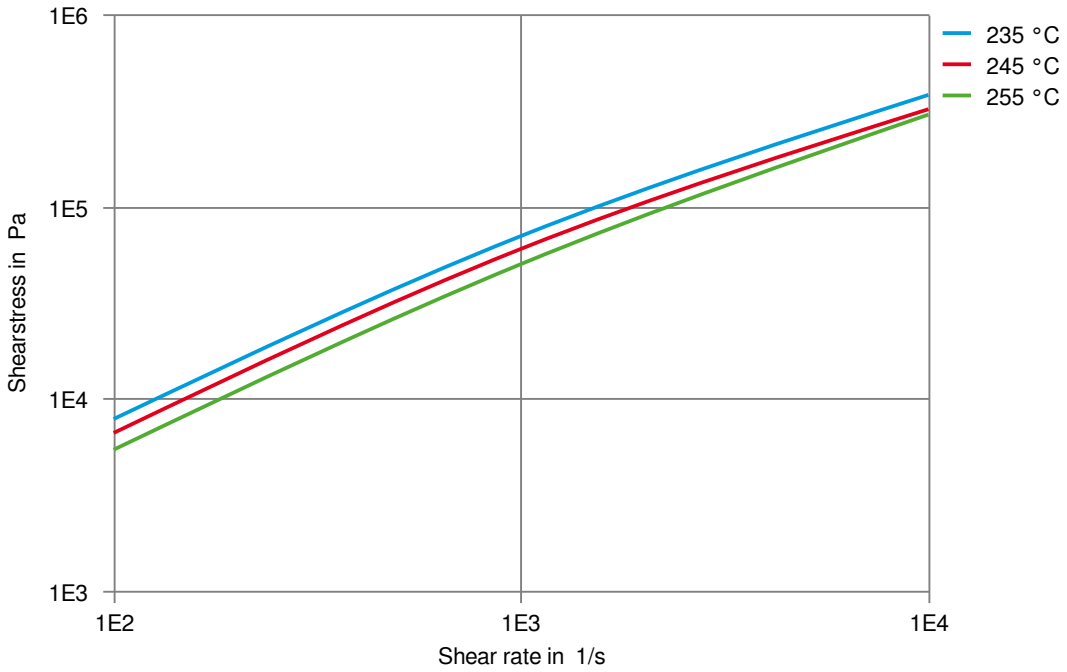
Shearstress-shear rate



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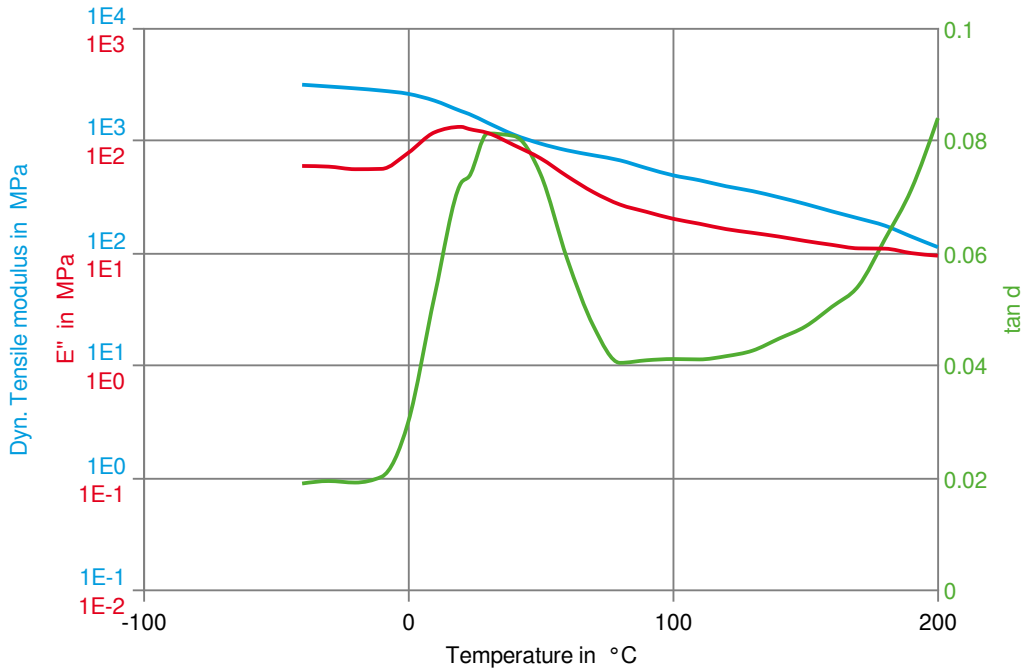
Dynamic Tensile modulus-temperature (dry)



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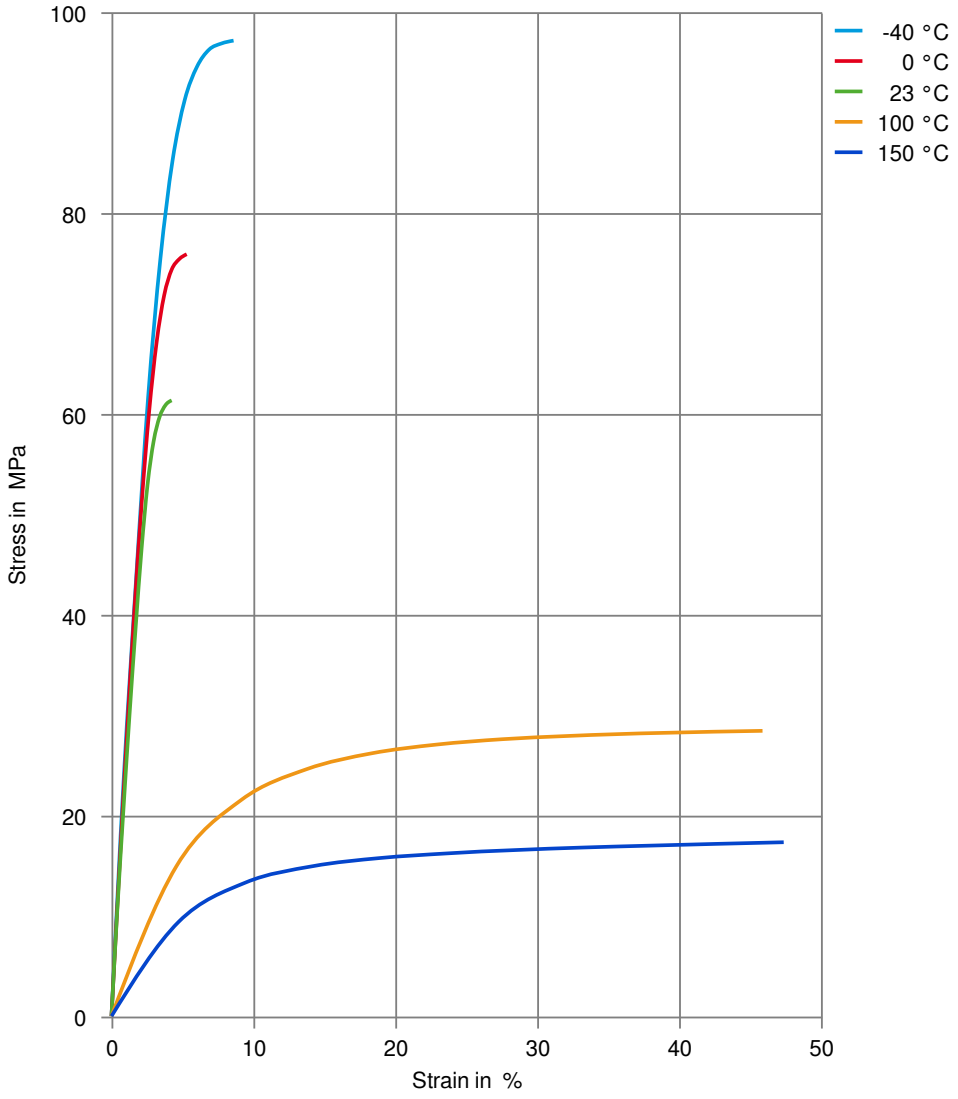
Stress-strain (dry)



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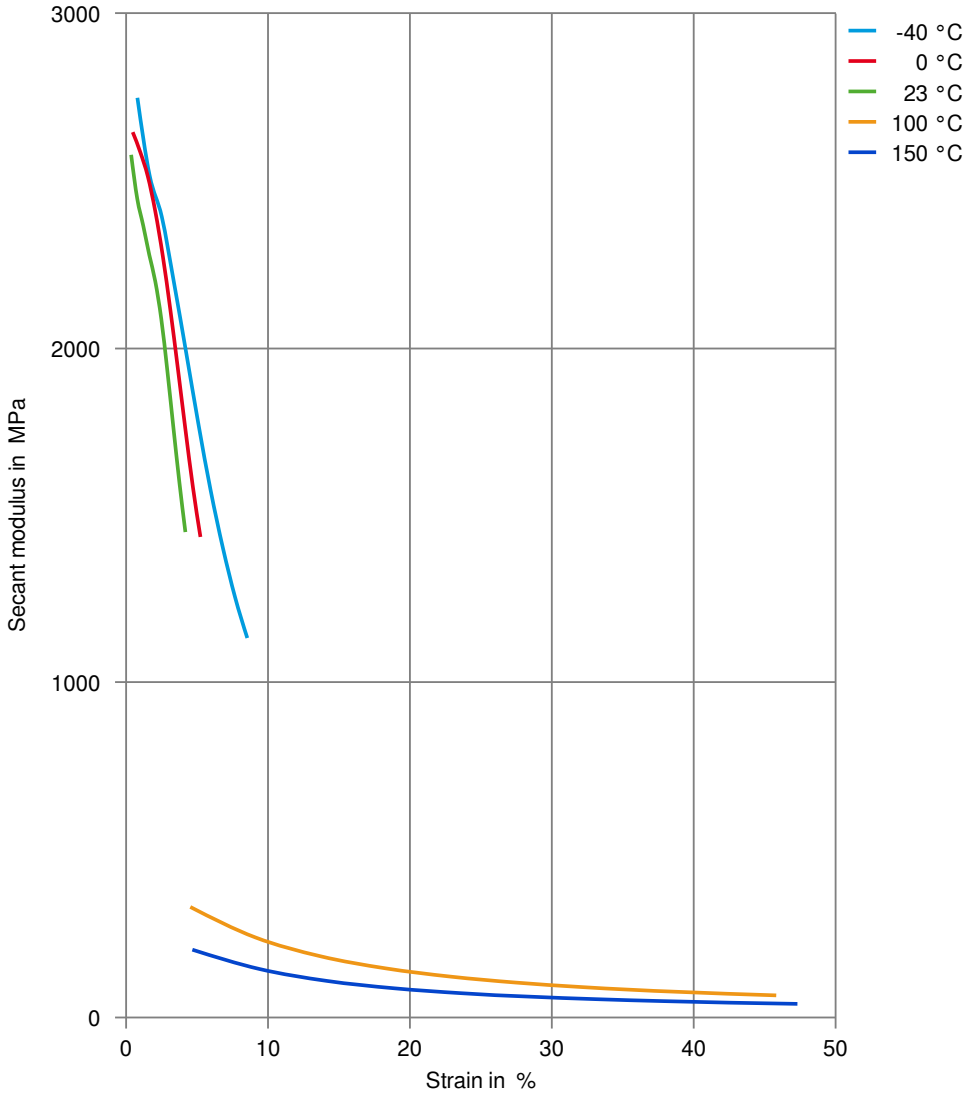
Secant modulus-strain (dry)



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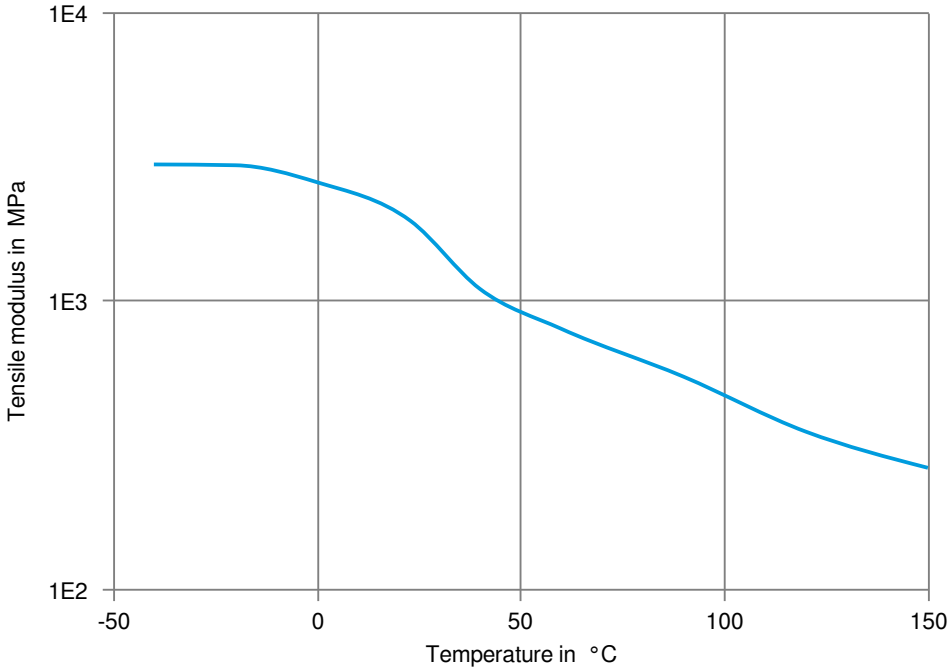
Tensile modulus-temperature (cond.)



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