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Zytel® 80G43EF BK314LM

NYLON RESIN

Common features of Zytel® nylon resin include mechanical and physical properties such as high mechanical strength, excellent balance of stiffness and toughness, good high temperature performance, good electrical and flammability properties, good abrasion and chemical resistance. In addition, Zytel® nylon resins are available in different modified and reinforced grades to create a wide range of products with tailored properties for specific processes and end-uses. Zytel® nylon resin, including most flame retardant grades, offer the ability to be coloured.

The good melt stability of Zytel® nylon resin normally enables the recycling of properly handled production waste. If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-31kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Zytel® nylon resin typically is used in demanding applications in the automotive, furniture, domestic appliances, sporting goods and construction industry.

Zytel® 80G43EF BK314LM is a 43% glass fiber reinforced, low halide, heat stabilised, laser markable black polyamide 66 resin with superior impact resistance.

Product information

Resin Identification	PA66-IGF43	ISO 1043
Part Marking Code	>PA66-IGF43<	ISO 11469
ISO designation	ISO 16396-PA66-I,GF43,M1CGHR,S14-120	

Rheological properties

	dry/cond.		
Viscosity number	140[1]/*	cm^3/g	ISO 307, 1628
Moulding shrinkage, parallel	0.2 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.7 / -	%	ISO 294-4, 2577
Melt viscosity , @ 1000 sec-1, 280 °C	220 / *	Pa.s	ISO 11443

[1]: Sulfuric Acid

Typical mechanical properties

	dry/cond.		
Tensile modulus	12100 / 8600	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	180 / 130	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3.3 / 6	%	ISO 527-1/-2
Flexural strength	260 / 180	MPa	ISO 178
Charpy impact strength, 23 °C	98 / 104	kJ/m^2	ISO 179/1eU
Charpy impact strength, -30 °C	96 / 99	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23 °C	23 / 28	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30 °C	16 / 16	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -40 °C	15 / 15	kJ/m^2	ISO 179/1eA
Poisson's ratio	0.33 / 0.34		

Thermal properties

	dry/cond.		
Melting temperature, 10 °C/min	262 / *	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	250 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23 °C	15 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	16 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160 °C	12 / *	E-6/K	ISO 11359-1/-2

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Coeff. of linear therm. expansion, normal, -40-23°C	63 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	92 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	115 / *	E-6/K	ISO 11359-1/-2

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	HB / *[A]	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
FMVSS Class	SE / B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	20	mm/min	ISO 3795 (FMVSS 302)

[A]: Assessed

Electrical properties

	dry/cond.		
Volume resistivity	>1E13 / 1E10	Ohm.m	IEC 62631-3-1
Surface resistivity	* / 1.7E14	Ohm	IEC 62631-3-2
Comparative tracking index	600 / -		IEC 60112
Electric Strength, Short Time, 1mm	37 / 36	kV/mm	IEC 60243-1

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1.4 / *	%	Sim. to ISO 62
Water absorption, 2mm	3.8 / *	%	Sim. to ISO 62
Density	1430 / -	kg/m³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	80	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.2	%
Melt Temperature Optimum	295	°C
Min. melt temperature	285	°C
Max. melt temperature	305	°C
Screw tangential speed	≤0.2	m/s
Mold Temperature Optimum	80	°C
Min. mould temperature	50	°C
Max. mould temperature	100	°C
Hold pressure range	50 - 100	MPa
Hold pressure time	3	s/mm
Ejection temperature	215	°C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent, Low halide content
Special characteristics	High impact or impact modified, Heat stabilised or stable to heat, Laser Markable

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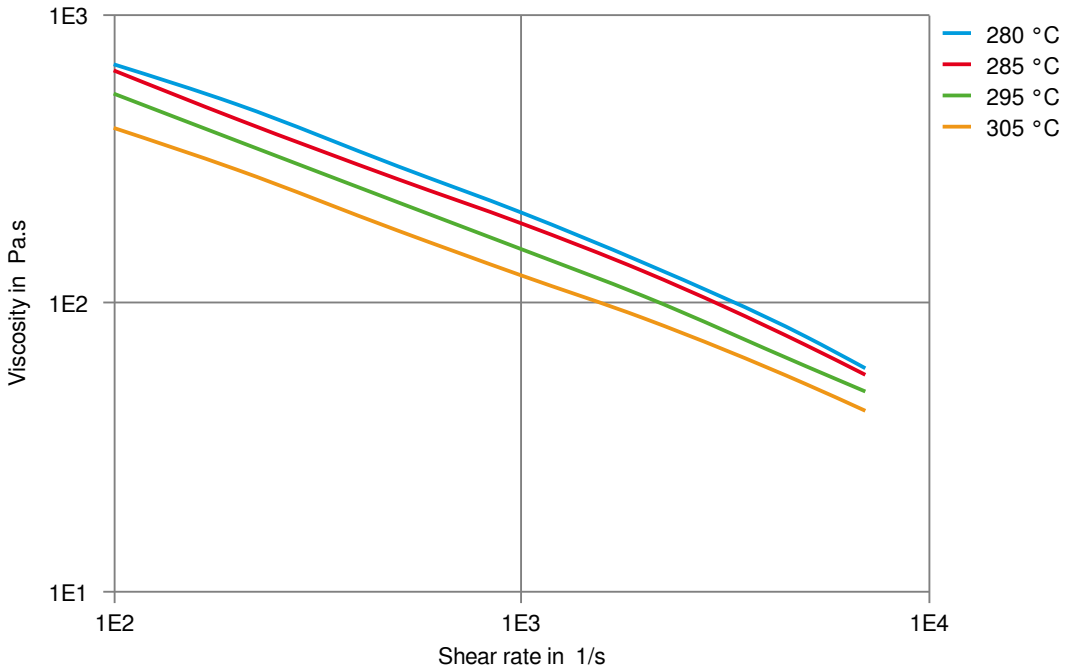
Viscosity-shear rate



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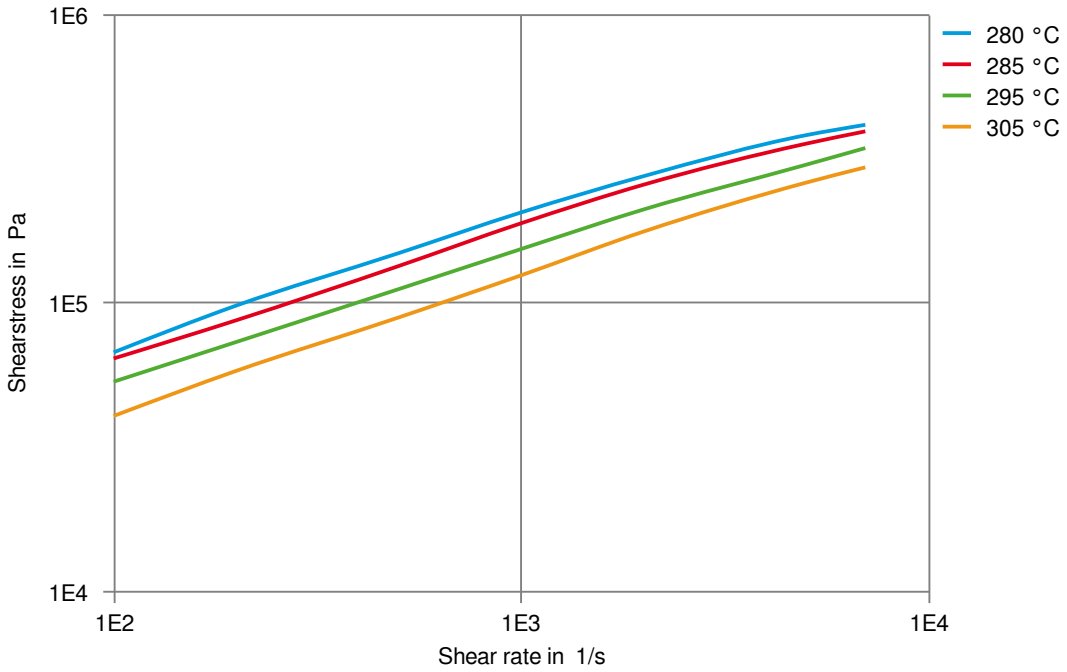
Shearstress-shear rate



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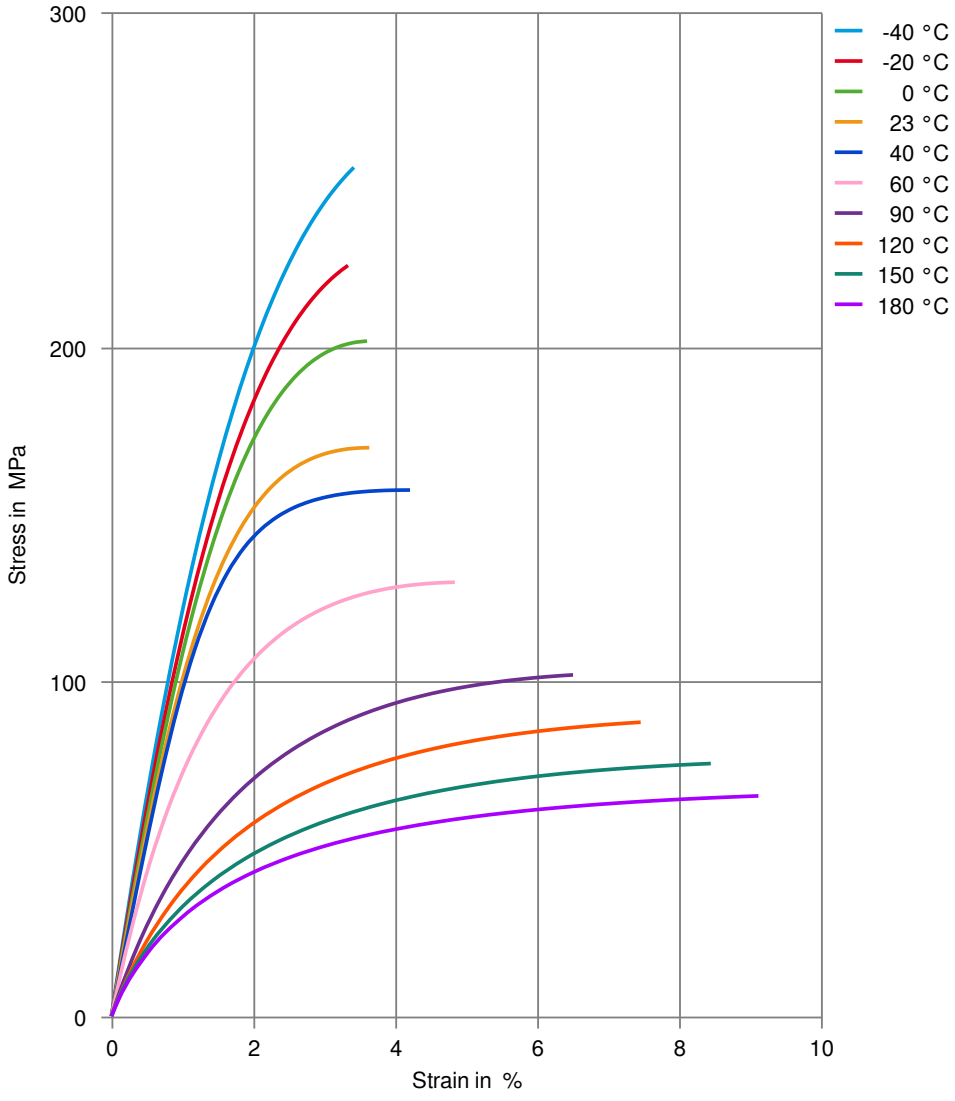
Stress-strain (dry)



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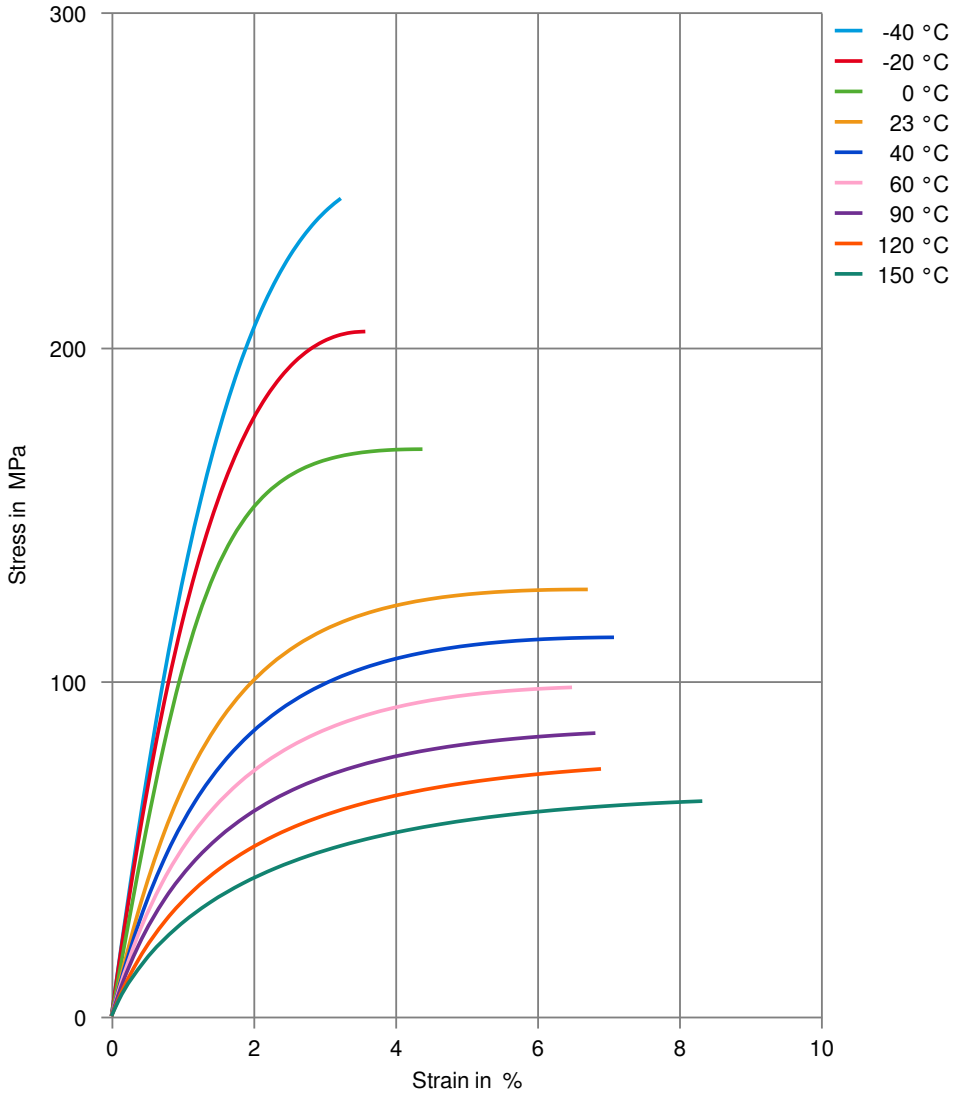
Stress-strain (cond.)



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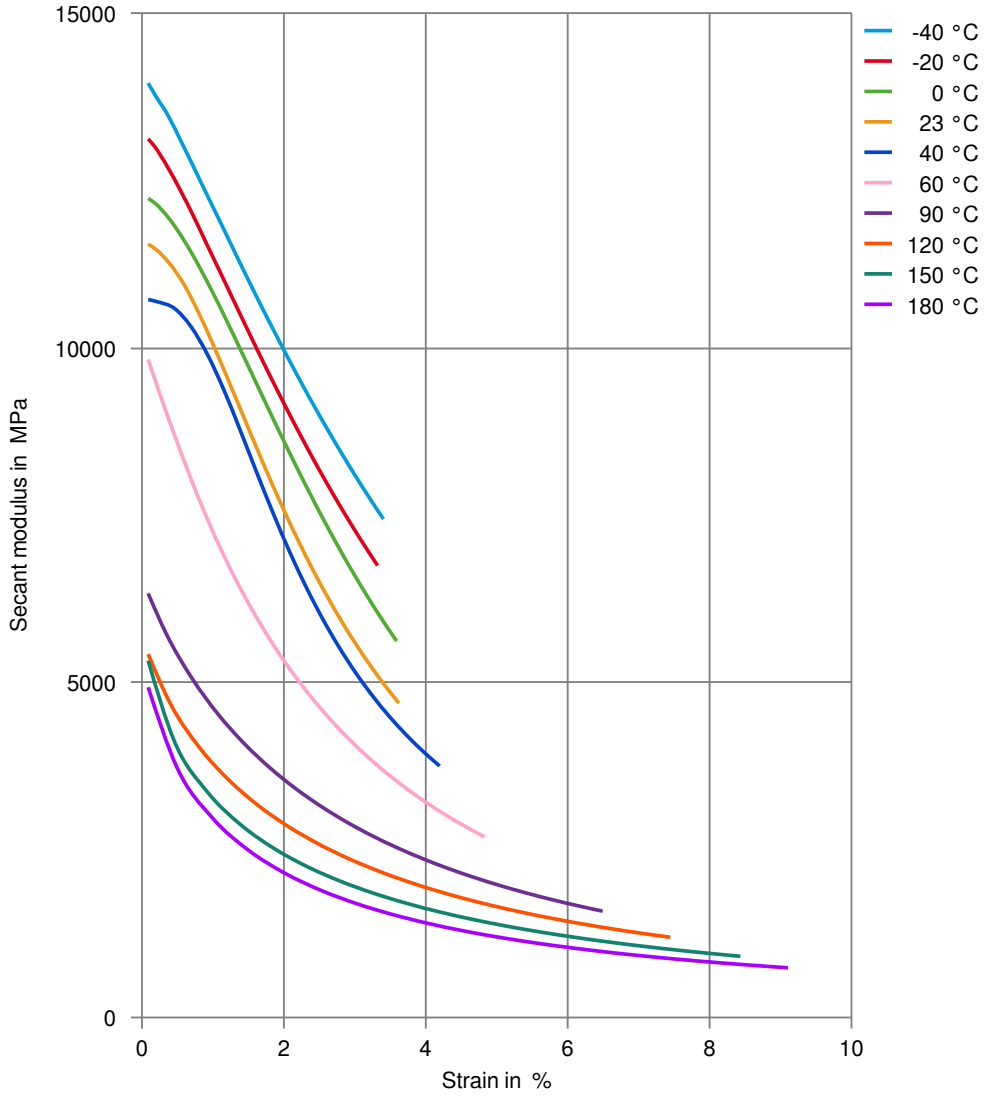
Secant modulus-strain (dry)



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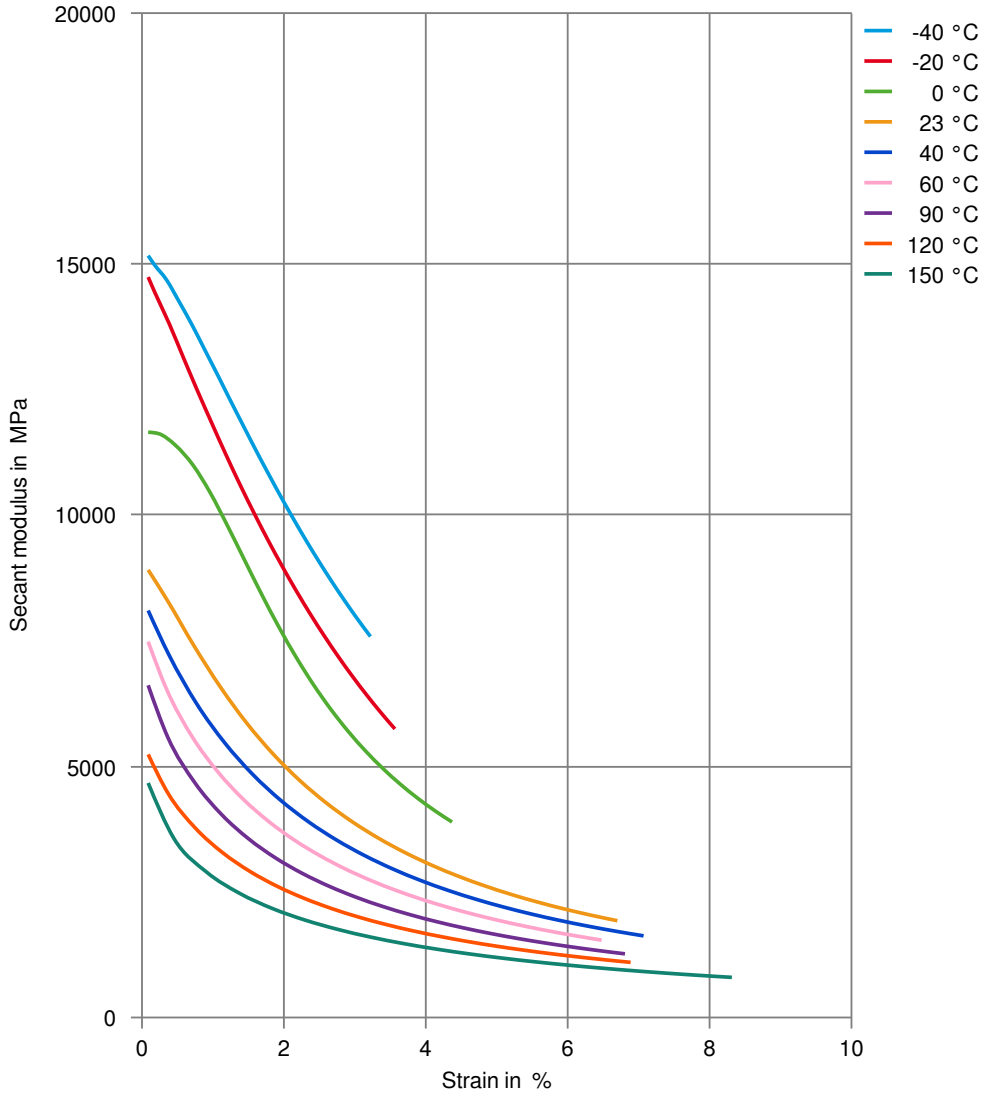
Secant modulus-strain (cond.)



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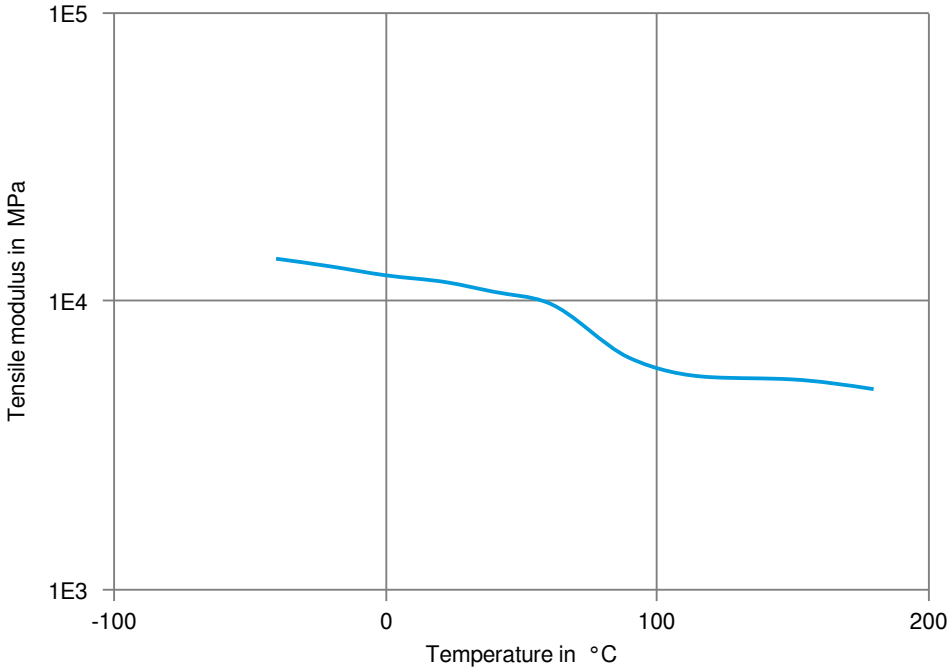
Tensile modulus-temperature (dry)



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Tensile modulus-temperature (cond.)