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Zytel® HTNFR52G45BL BK337

HIGH PERFORMANCE POLYAMIDE RESIN

Zytel® HTN high performance polyamide resins feature high retention of properties upon exposure to elevated temperature, to high moisture, and to harsh chemical environments. Polymer families and grades of Zytel® HTN are tailored to optimize performance as well as processability.

Typical applications with Zytel® HTN include demanding applications in the automotive, electrical and electronics, domestic appliances, and construction industries.

Zytel® HTNFR52G45BL BK337 is a 45% glass reinforced, flame retardant, lubricated high performance polyamide resin that has been developed for connector applications.

Product information

Resin Identification	PA6T/66-GF45FR(16+72)	ISO 1043
Part Marking Code	>PA6T/66-GF45FR(16+72)<	ISO 11469
Part Marking Code	>PPA-GF45FR<	SAE J1344
ISO designation	ISO 16396-PA6T/66,GF45 FR(16+72),M1CF1GR,S10-160	

Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.2 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	17000 / 17000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	175 / 155	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.3 / 1.5	%	ISO 527-1/-2
Flexural modulus	15200 / 15200	MPa	ISO 178
Flexural strength	290 / 260	MPa	ISO 178
Charpy impact strength, 23°C	42 / 36	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	40 / 36	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	13 / -	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	13 / -	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	12 / -	kJ/m²	ISO 180/1A
Poisson's ratio	0.33 / 0.33		

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	310 / *	°C	ISO 11357-1/-3
Melting temperature, first heat	310 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	90 / 45	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	284 / *	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	300 / *	°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	15 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	8 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	50 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	50 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	75 / *	E-6/K	ISO 11359-1/-2
RTI, electrical, 0.75mm	140	°C	UL 746B

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RTI, electrical, 1.5mm	140	°C	UL 746B
RTI, electrical, 3.0mm	140	°C	UL 746B
RTI, impact, 0.75mm	120	°C	UL 746B
RTI, impact, 1.5mm	120	°C	UL 746B
RTI, impact, 3.0mm	120	°C	UL 746B
RTI, strength, 0.75mm	120	°C	UL 746B
RTI, strength, 1.5mm	120 / *	°C	UL 746B
RTI, strength, 3.0mm	130	°C	UL 746B
TGA curve	available		ISO 11359-1/-2

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	V-0 / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. at thickness h	V-0 / *	class	IEC 60695-11-10
Thickness tested	0.75 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Oxygen index	49 / *	%	ISO 4589-1/-2
Glow Wire Flammability Index, 1.0mm	960 / -	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 1.0mm	900 / -	°C	IEC 60695-2-13
Glow Wire Temperature, No Flame, 1mm	875 / -	°C	IEC 60335-1
Glow Wire Temperature, No Flame, 1.5mm	875 / -	°C	IEC 60335-1
Glow Wire Temperature, No Flame, 2mm	875 / -	°C	IEC 60335-1
Glow Wire Temperature, No Flame, 3mm	875 / -	°C	IEC 60335-1
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	mm/min	ISO 3795 (FMVSS 302)
Railway classification	R23 / -		EN 45545-2
Railway classification rating	HL1 / -		EN 45545-2

Electrical properties

	dry/cond.		
Relative permittivity, 100Hz	3.9 / -		IEC 62631-2-1
Relative permittivity, 1MHz	3.6 / -		IEC 62631-2-1
Dissipation factor, 100Hz	45 / -	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	112 / -	E-4	IEC 62631-2-1
Volume resistivity	>1E13 / -	Ohm.m	IEC 62631-3-1
Electric strength	31 / -	kV/mm	IEC 60243-1
Comparative tracking index	500 / -		IEC 60112
Dissipation Factor, 1 GHz	110 / -	E-4	ASTM D 2520 B
Dissipation Factor, 23 °C, 10 GHz	110 / -	E-4	ASTM D 2520 B / IPC-TM-650

Physical/Other properties

	dry/cond.		
Density	1760 / -	kg/m³	ISO 1183

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Injection

Drying Recommended	yes	
Drying Temperature	100	°C
Drying Time, Dehumidified Dryer	6 - 8	h
Processing Moisture Content	≤0.1	%
Melt Temperature Optimum	325	°C
Min. melt temperature	320	°C
Max. melt temperature	330	°C
Mold Temperature Optimum	100	°C
Min. mould temperature	85	°C
Max. mould temperature	130	°C
Ejection temperature	255	°C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent, Flame retardant
Special characteristics	Flame retardant, Lead-free soldering resistant

Additional information

Injection molding	During molding, use proper protective equipment and adequate ventilation. Avoid exposure to fumes and limit the holdup time and temperature of the resin in the machine. Purge degraded resin carefully with HDPE.

Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
Stellantis	B62 0300 / 61/U4/225E/215M/C2B/C4	01378_20_04249

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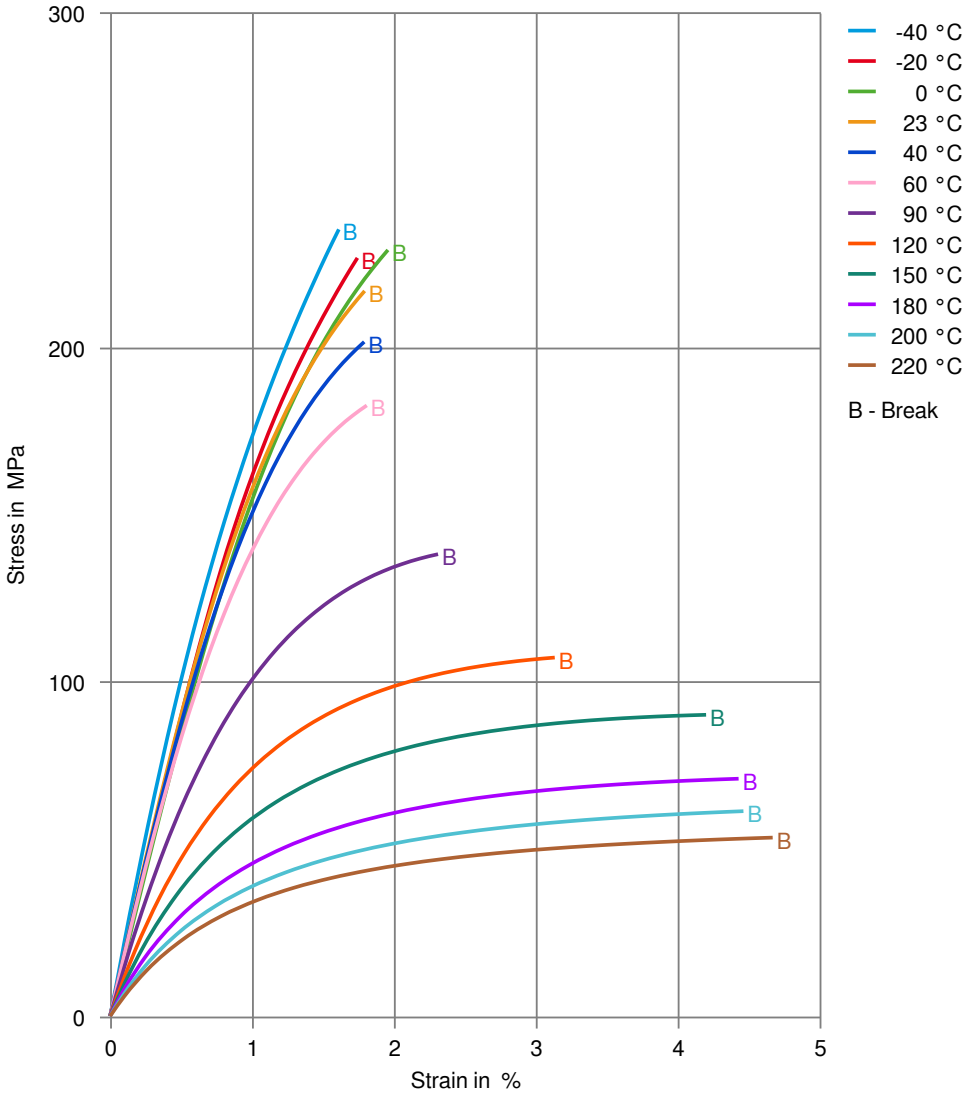
Stress-strain (dry)



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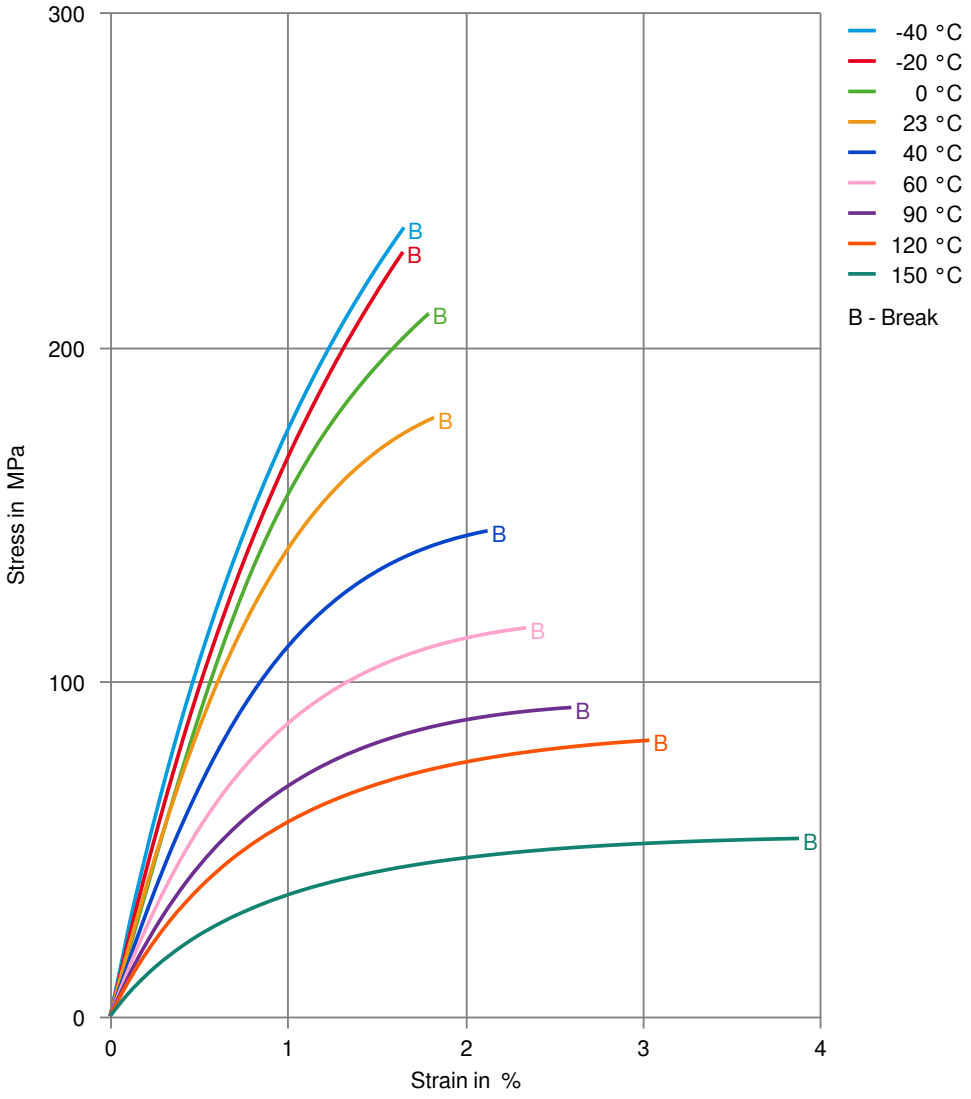
Stress-strain (cond.)



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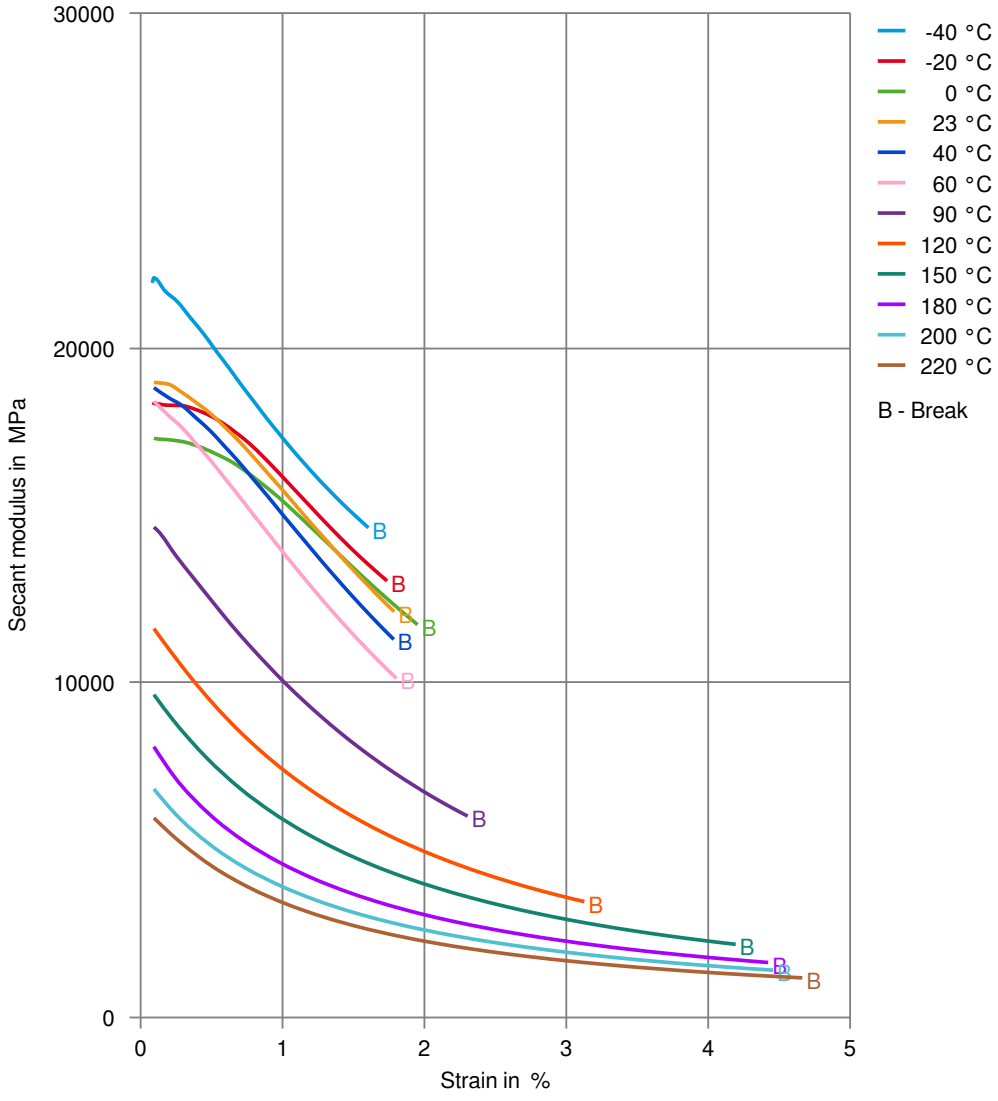
HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (dry)



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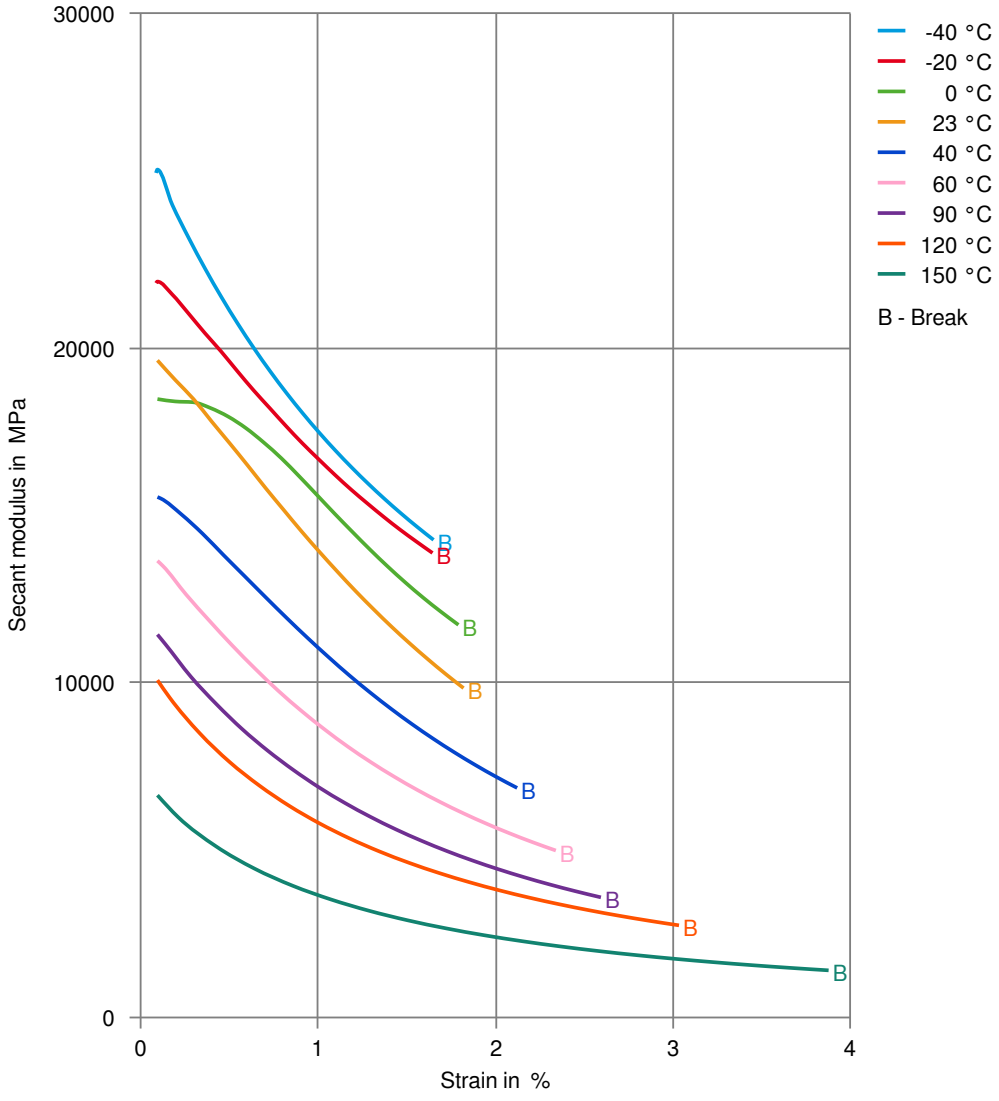
Secant modulus-strain (cond.)



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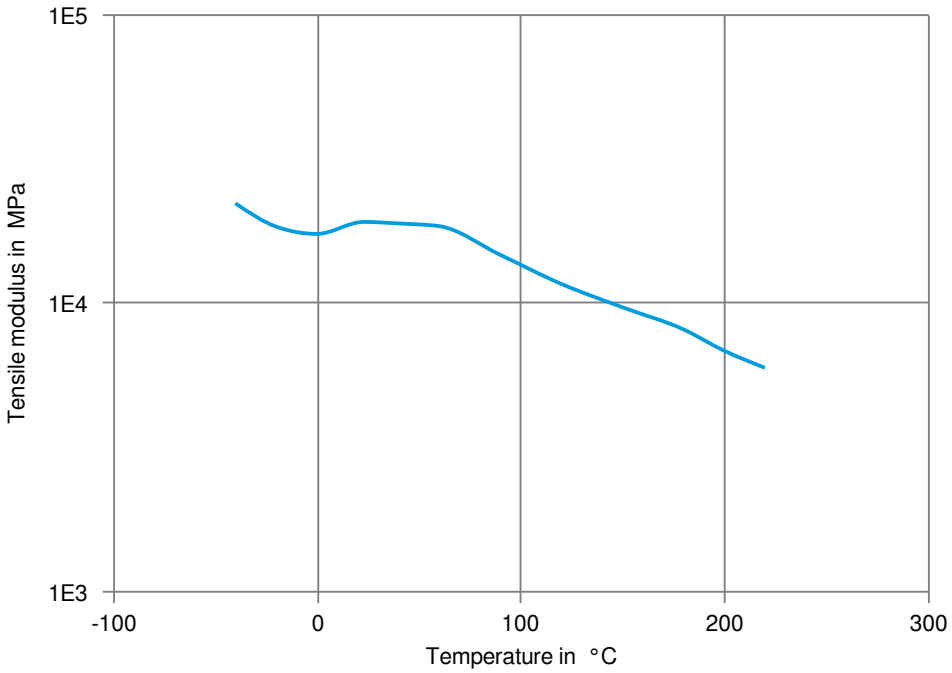
HIGH PERFORMANCE POLYAMIDE RESIN

Tensile modulus-temperature (dry)



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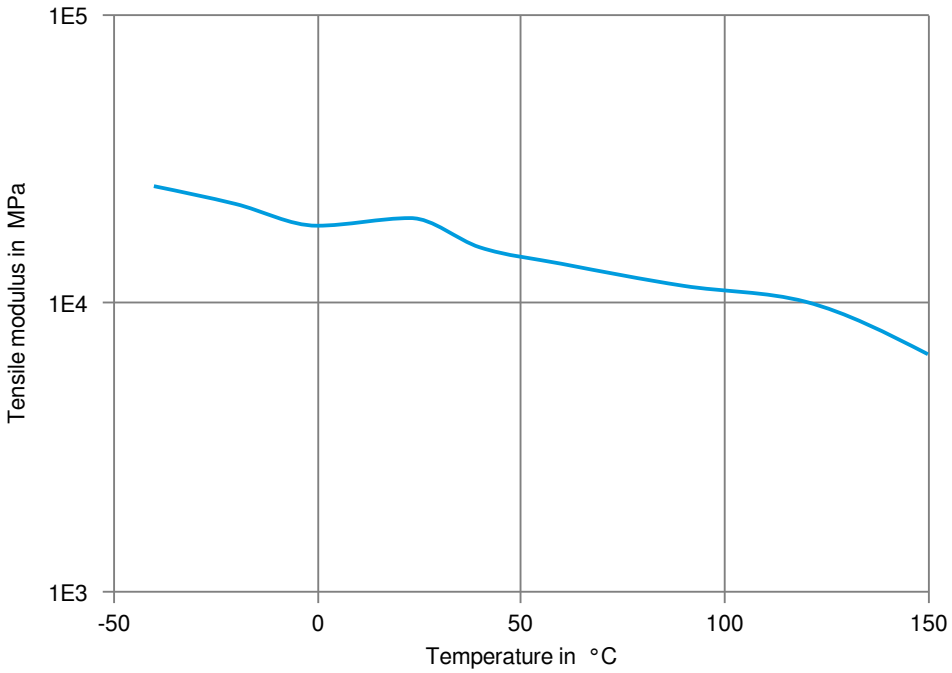
Tensile modulus-temperature (cond.)



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