

Zytel® HTNFR55G50NHLW BK046

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® HTNFR55G50NHLW BK046 is a 50% glass reinforced, flame retardant high performance polyamide resin with improved flow and low warpage in structural applications requiring good surface appearance. It uses a non-halogenated flame retardant.

Product information

Resin Identification	PA-GF50FR(40)	ISO 1043
Part Marking Code	>PA-GF50FR(40)<	ISO 11469
Part Marking Code	>PPA-GF50FR<	SAE J1344
ISO designation	ISO 16396-PA,GF50 FR(40),M1CF1G,S10-190	

Rheological properties

	dry/cond.		
Viscosity number	70 / *	cm ³ /g	ISO 307, 1628
Moulding shrinkage, parallel	0.1 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.2 / -	%	ISO 294-4, 2577
Flow length	165 / *	mm	
Flow length - pressure	100 / *	MPa	
Flow length - width/thickness	1 / *	mm	

Typical mechanical properties

	dry/cond.		
Tensile modulus	18000 / 19100	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	200 / 176	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.6 / 1.3	%	ISO 527-1/-2
Flexural modulus	17000 / -	MPa	ISO 178
Flexural strength	310 / -	MPa	ISO 178
Charpy impact strength, 23°C	50 / -	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	13 / -	kJ/m ²	ISO 179/1eA
Poisson's ratio	0.33 / 0.33		

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	296 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	110 / -	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	215 / *	°C	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	13 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	38 / *	E-6/K	ISO 11359-1/-2
RTI, electrical, 0.4mm	65	°C	UL 746B
RTI, electrical, 0.75mm	65	°C	UL 746B
RTI, electrical, 1.5mm	65	°C	UL 746B
RTI, electrical, 3.0mm	65	°C	UL 746B
RTI, impact, 0.4mm	65	°C	UL 746B

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RTI, impact, 0.75mm	65	°C	UL 746B
RTI, impact, 1.5mm	65	°C	UL 746B
RTI, impact, 3.0mm	65	°C	UL 746B
RTI, strength, 0.4mm	65	°C	UL 746B
RTI, strength, 0.75mm	65	°C	UL 746B
RTI, strength, 1.5mm	65/*	°C	UL 746B
RTI, strength, 3.0mm	65	°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	0.4/*	mm	IEC 60695-11-10
UL recognition	yes/*		UL 94
FMVSS Class	DNI		ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Comparative tracking index	600/-		IEC 60112
Dielectric Constant, 1 GHz	4.3/-		ASTM D 2520 B
Dielectric Constant, 23°C, 10 GHz	4.4/-		ASTM D 2520 B / IPC-TM-650
Dissipation Factor, 1 GHz	116/-	E-4	ASTM D 2520 B
Dissipation Factor, 23°C, 10 GHz	122/-	E-4	ASTM D 2520 B / IPC-TM-650

Physical/Other properties

	dry/cond.		
Water absorption, Immersion 24h	0.6/*	%	Sim. to ISO 62
Density	1650/-	kg/m³	ISO 1183

Injection

Drying Recommended	yes
Drying Temperature	100 °C
Drying Time, Dehumidified Dryer	6 - 8 h
Processing Moisture Content	≤0.1 %
Melt Temperature Optimum	305 °C
Min. melt temperature	295 °C
Max. melt temperature	315 °C
Mold Temperature Optimum	130 °C
Min. mould temperature	120 °C
Max. mould temperature	140 °C
Ejection temperature	236 °C

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Characteristics

Processing	Injection Moulding
Additives	Flame retardant, Non-halogenated/Red phosphorous free flame retardant
Special characteristics	Flame retardant

Additional information

Injection molding	For molding machine components, use corrosion resistant and wear resistant steel. For details please contact our representative. Limit the residence time of the resin in the machine. Use proper protective equipment and adequate ventilation.
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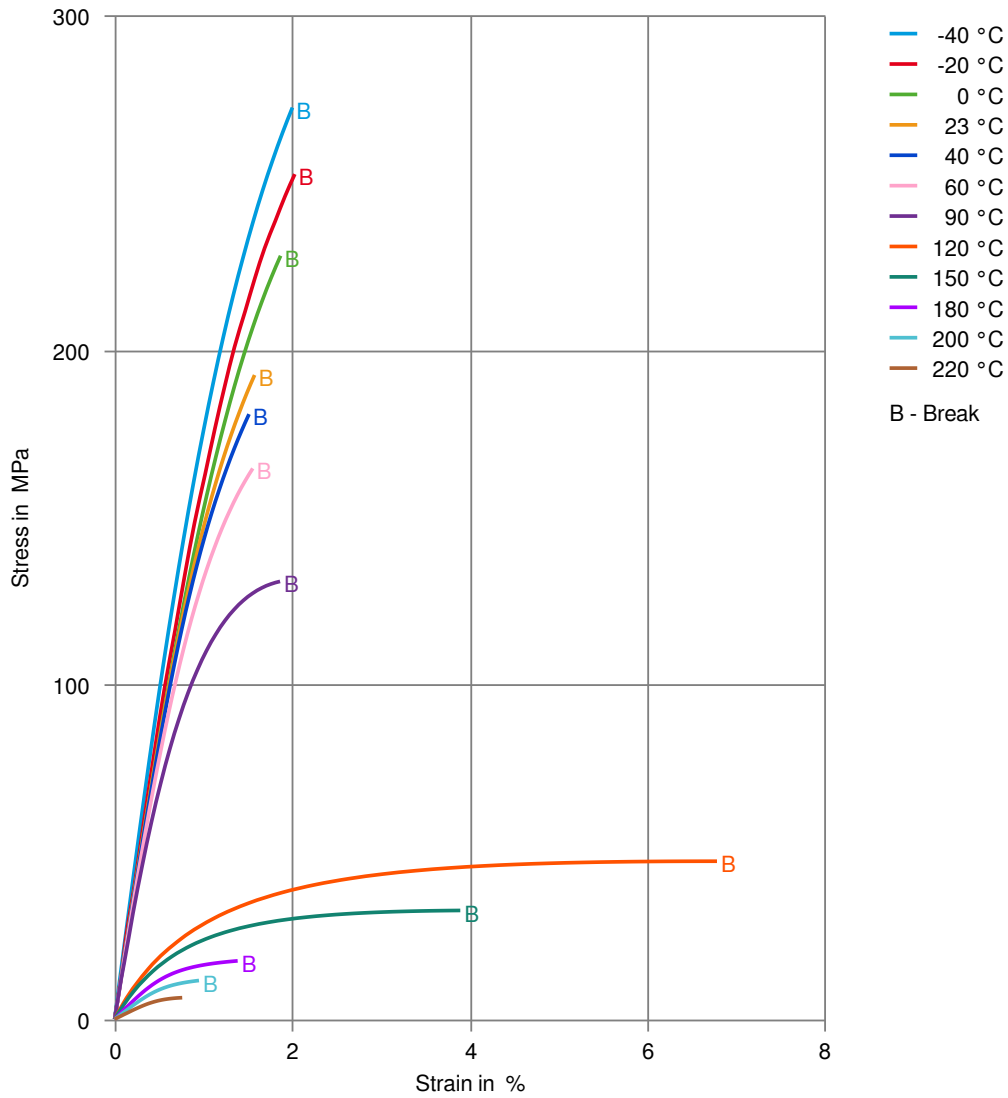
Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
Renault-Nissan	UB25c, No Spec, Special Part Approval, See Your CE Account Manager.	
Stellantis	B62 0300 / 61/223E-218M/C1/C4	Technical Black

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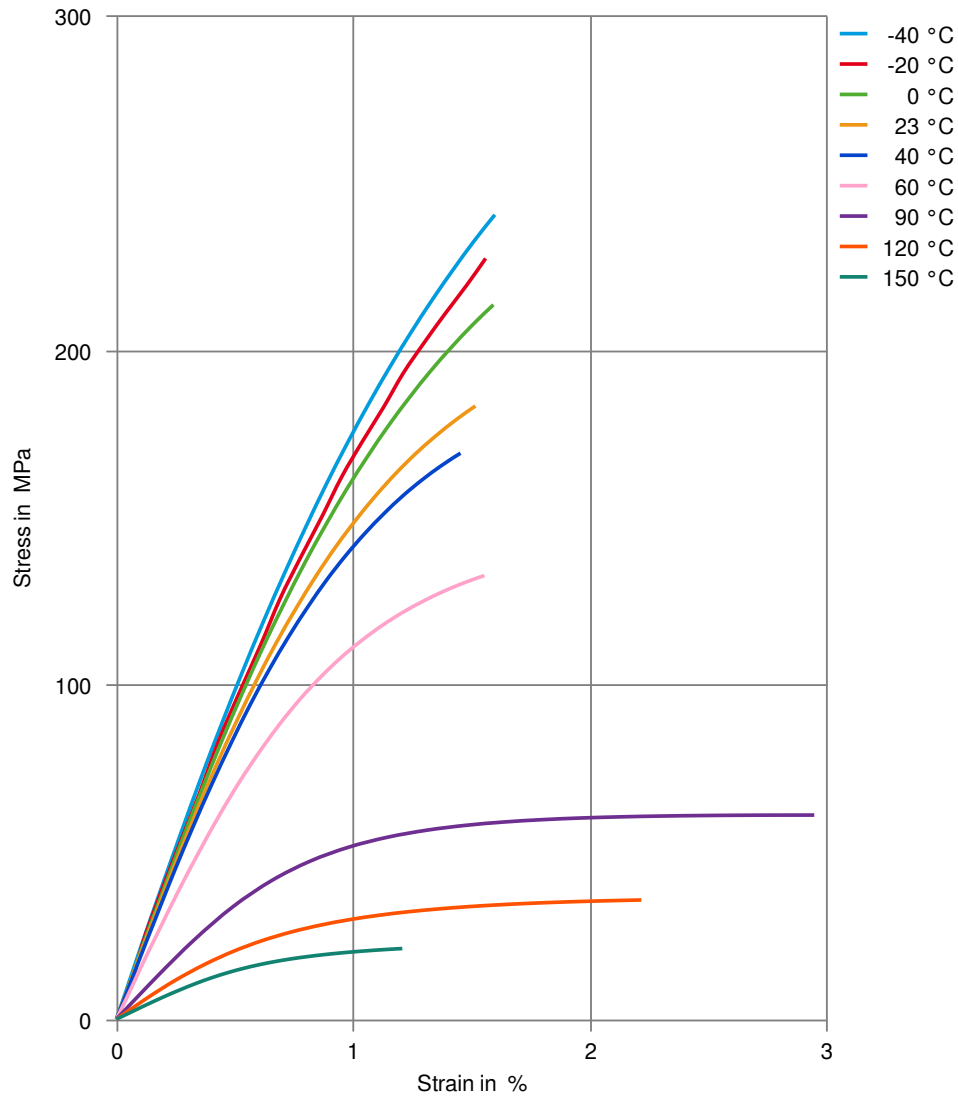
Stress-strain (dry)



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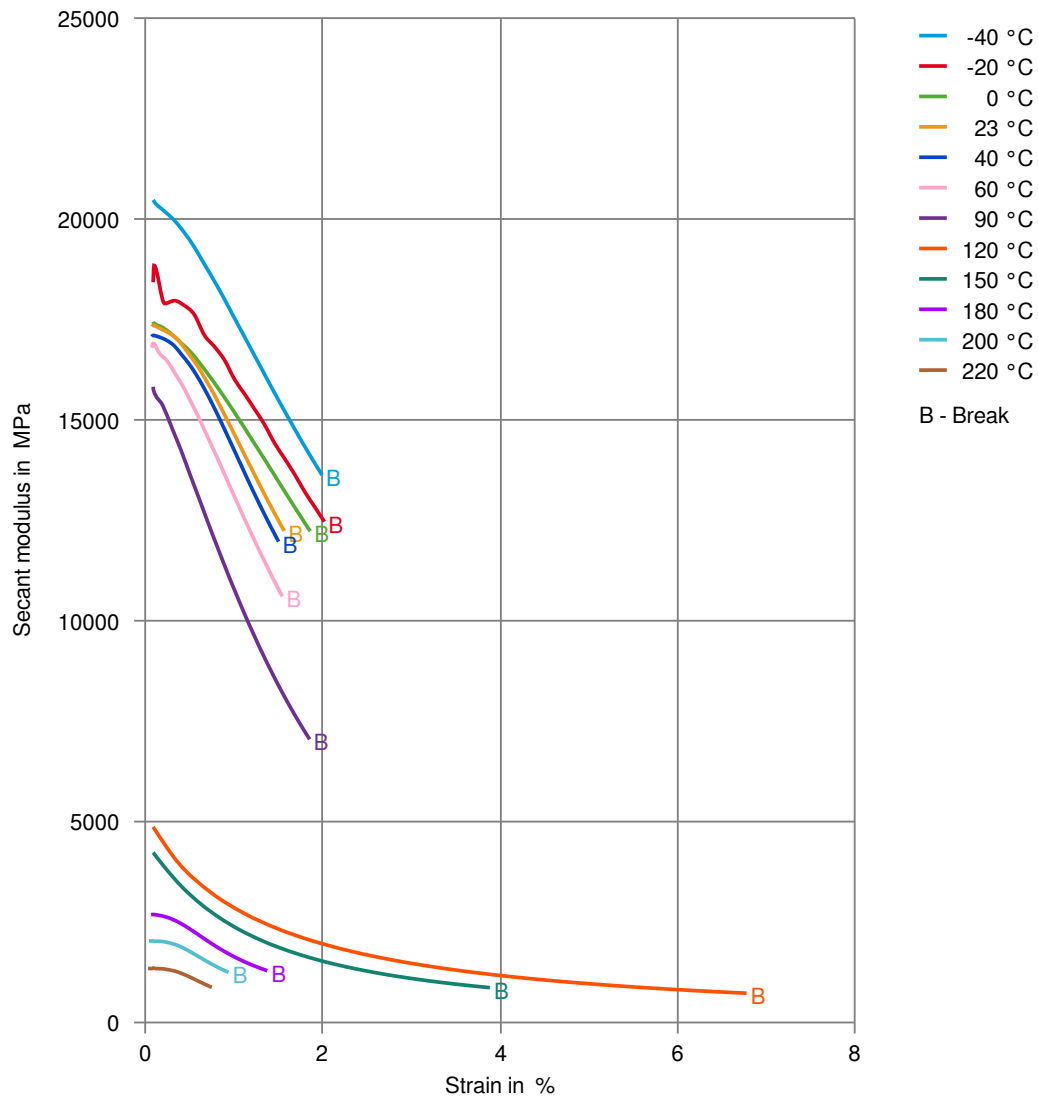
Stress-strain (cond.)



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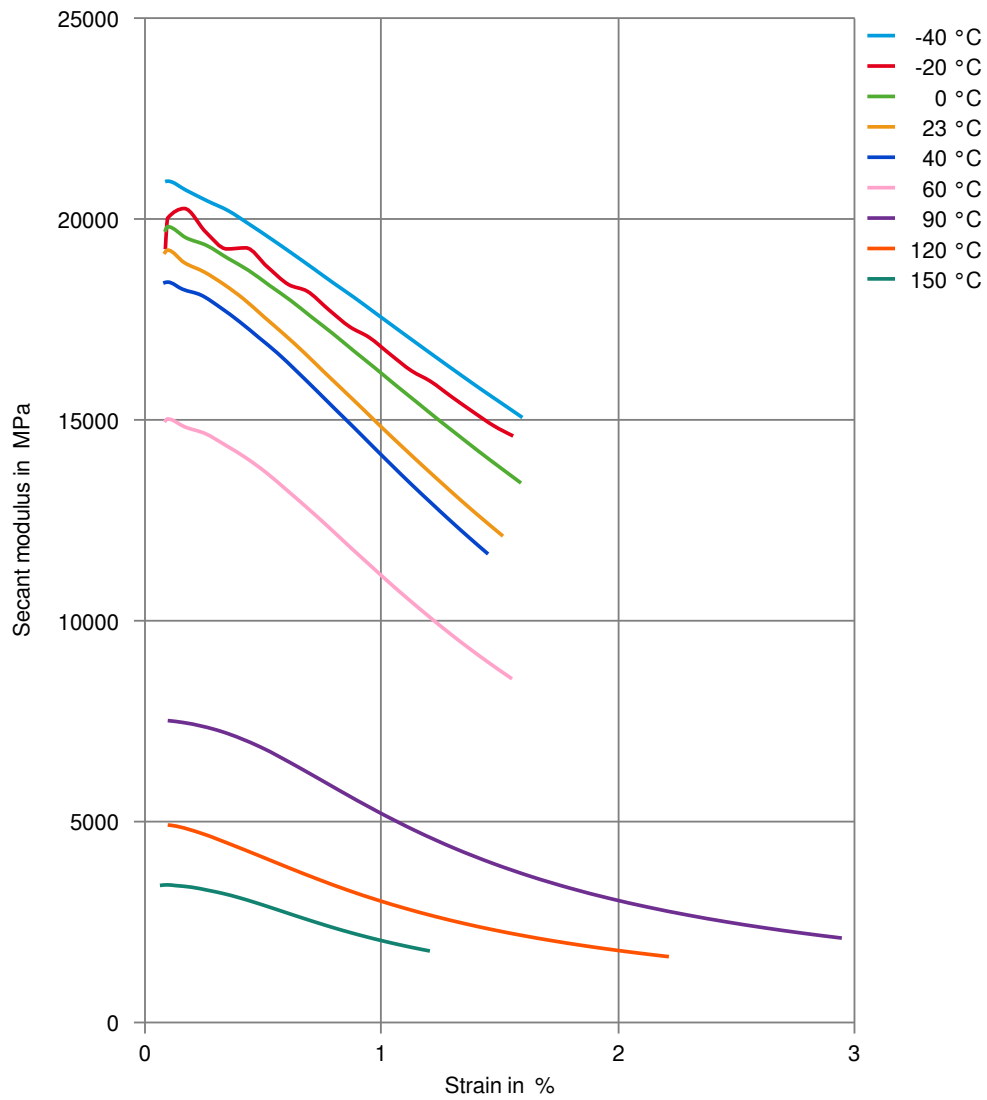
Secant modulus-strain (dry)



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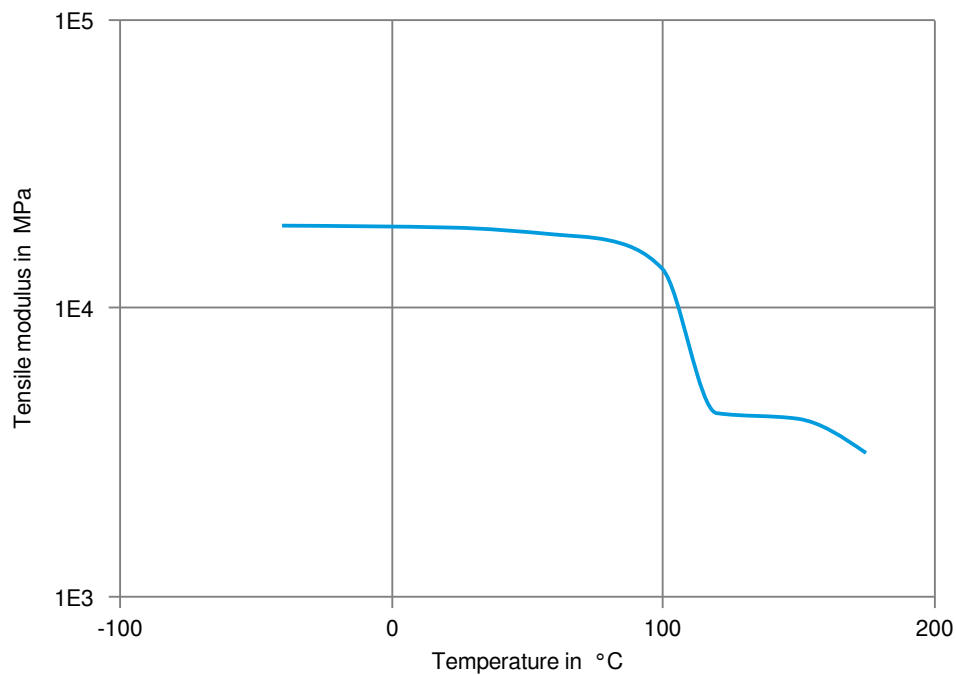
Secant modulus-strain (cond.)



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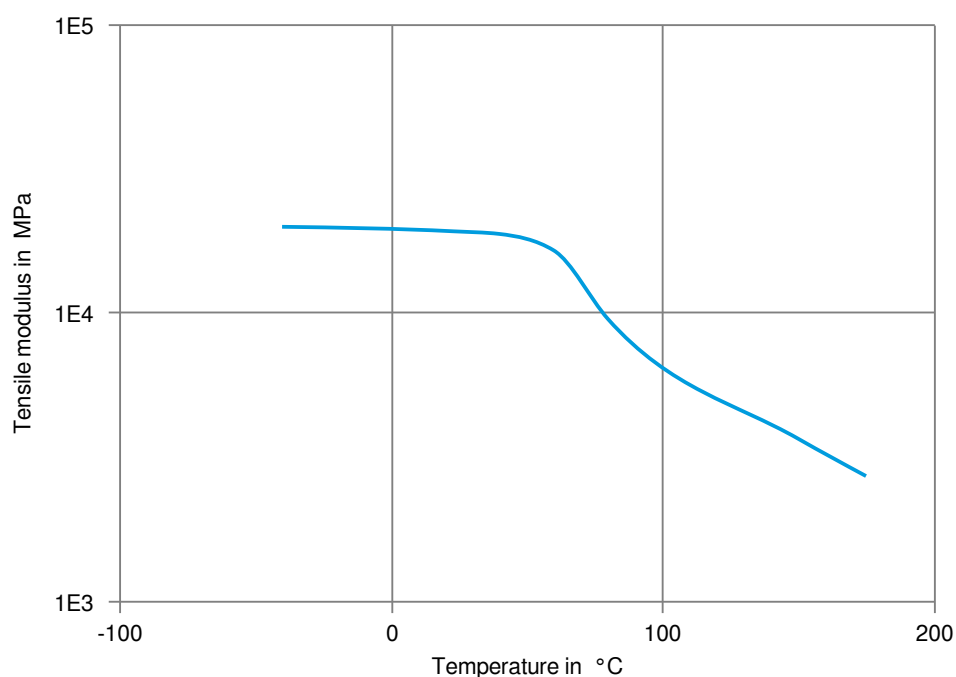
Tensile modulus-temperature (dry)



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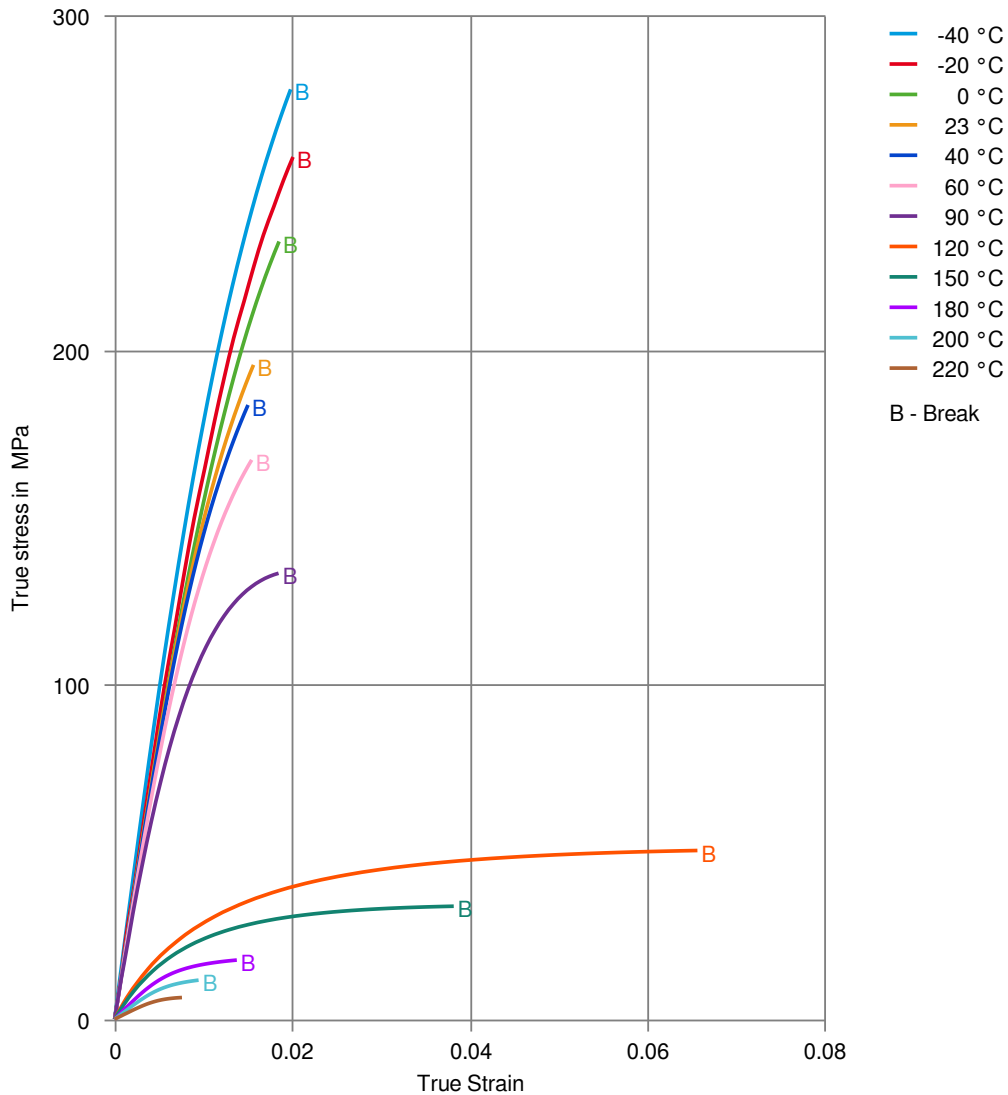
Tensile modulus-temperature (cond.)



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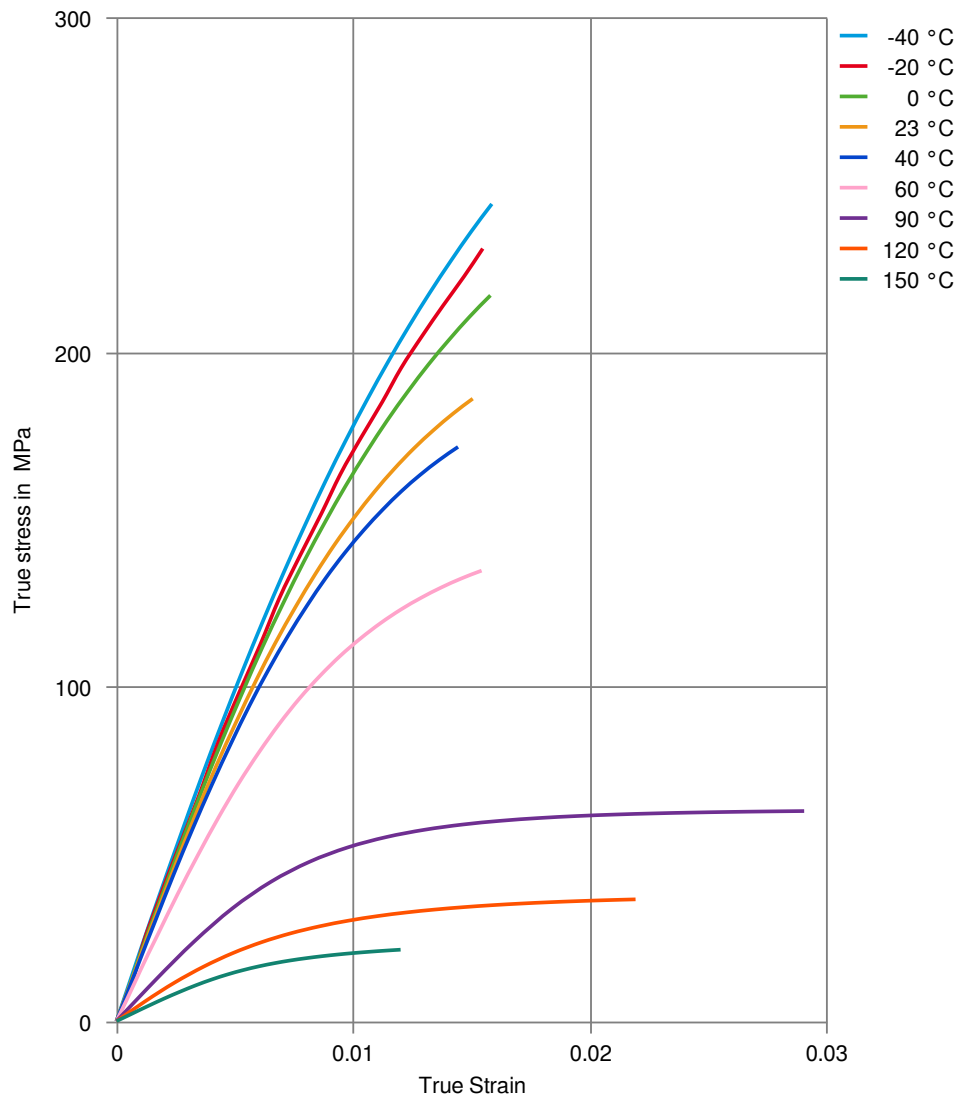
True stress-strain (dry)



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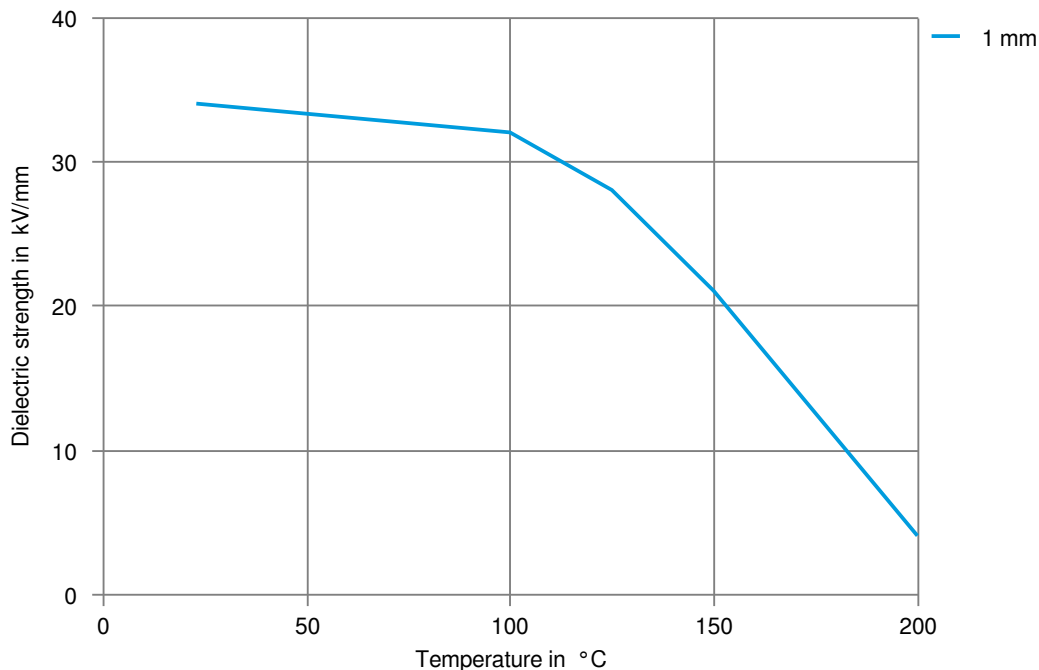
True stress-strain (cond.)



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Dielectric strength - temperature (dry)



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