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-GF45 FR(16+72)	ISO 1043
Part Marking Code	>PA6T/66-GF45 FR(16+72)<	ISO 11469
Part Marking Code	>PPA-GF45 FR<	SAE J1344
ISO designation	ISO 16396-PA6T/66,GF45 FR(16+72),M1CF1GR,S10-160	
TGA curve	available	ISO 11358-1

Rheological properties

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

Typical mechanical properties

	dry/cond.		
Tensile modulus	2.47E6 / 2.47E6	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	25400 / 22500	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.3 / 1.5	%	ISO 527-1/-2
Flexural modulus	2.2E6 / 2.2E6	psi	ISO 178
Flexural strength	42100 / 37700	psi	ISO 178
Charpy impact strength, 23°C	20 / 17.1	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30°C	19 / 17.1	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	6.18 / -	ftlb/in²	ISO 179/1eA
Charpy notched impact strength, -40°C	6.18 / -	ftlb/in²	ISO 179/1eA
Izod notched impact strength, 23°C	5.71 / -	ftlb/in²	ISO 180/1A

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	590 / *	°F	ISO 11357-1/-3
Melting temperature, first heat	590 / *	°F	ISO 11357-1/-3
Glass transition temperature, 10°C/min	194 / 113	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	543 / *	°F	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	572 / *	°F	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	0.08 / *	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel, -40-23°C	0.0833 / *	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel, 55-160°C	0.0444 / *	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.278 / *	E-4/°F	ISO 11359-1/-2

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Coefficient of linear thermal expansion (CLTE), normal, -40-23°C	0.278 / *	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal, 55-160°C	0.417 / *	E-4/°F	ISO 11359-1/-2
RTI, electrical, 0.75mm	284	°F	UL 746B
RTI, electrical, 1.5mm	284	°F	UL 746B
RTI, electrical, 3.0mm	284	°F	UL 746B
RTI, impact, 0.75mm	248	°F	UL 746B
RTI, impact, 1.5mm	248	°F	UL 746B
RTI, impact, 3.0mm	248	°F	UL 746B
RTI, strength, 0.75mm	248	°F	UL 746B
RTI, strength, 1.5mm	248 / *	°F	UL 746B
RTI, strength, 3.0mm	266	°F	UL 746B

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	V-0 / *	class	IEC 60695-11-10
Thickness tested	0.0591 / *	in	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. at thickness h	V-0 / *	class	IEC 60695-11-10
Thickness tested	0.0295 / *	in	IEC 60695-11-10
UL recognition	yes / *		UL 94
Oxygen index	49 / *	%	ISO 4589-1/-2
Glow Wire Flammability Index, 1.0mm	1760 / -	°F	IEC 60695-2-12
Glow Wire Ignition Temperature, 1.0mm	1650 / -	°F	IEC 60695-2-13
Glow Wire Temperature, No Flame, 1mm	1610 / -	°F	IEC 60335-1
Glow Wire Temperature, No Flame, 1.5mm	1610 / -	°F	IEC 60335-1
Glow Wire Temperature, No Flame, 2mm	1610 / -	°F	IEC 60335-1
Glow Wire Temperature, No Flame, 3mm	1610 / -	°F	IEC 60335-1
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	in/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	787 / -	kV/in	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

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Physical/Other properties

	dry/cond.		
Density	0.0635 / -	lb/in³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	212	°F
Drying Time, Dehumidified Dryer	6 - 8	h
Processing Moisture Content	≤0.1	%
Melt Temperature Optimum	617	°F
Min. melt temperature	608	°F
Max. melt temperature	626	°F
Mold Temperature Optimum	212	°F
Min. mold temperature	185	°F
Max. mold temperature	266	°F
Hold Pressure Time (h is the max. wall thickness of the part in mm)	h²+2	s
Ejection temperature	491	°F

Automotive

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

Characteristics

Processing	Injection Molding
Additives	Release agent, Flame retardant
Special characteristics	Flame retardant, Lead-free soldering resistant

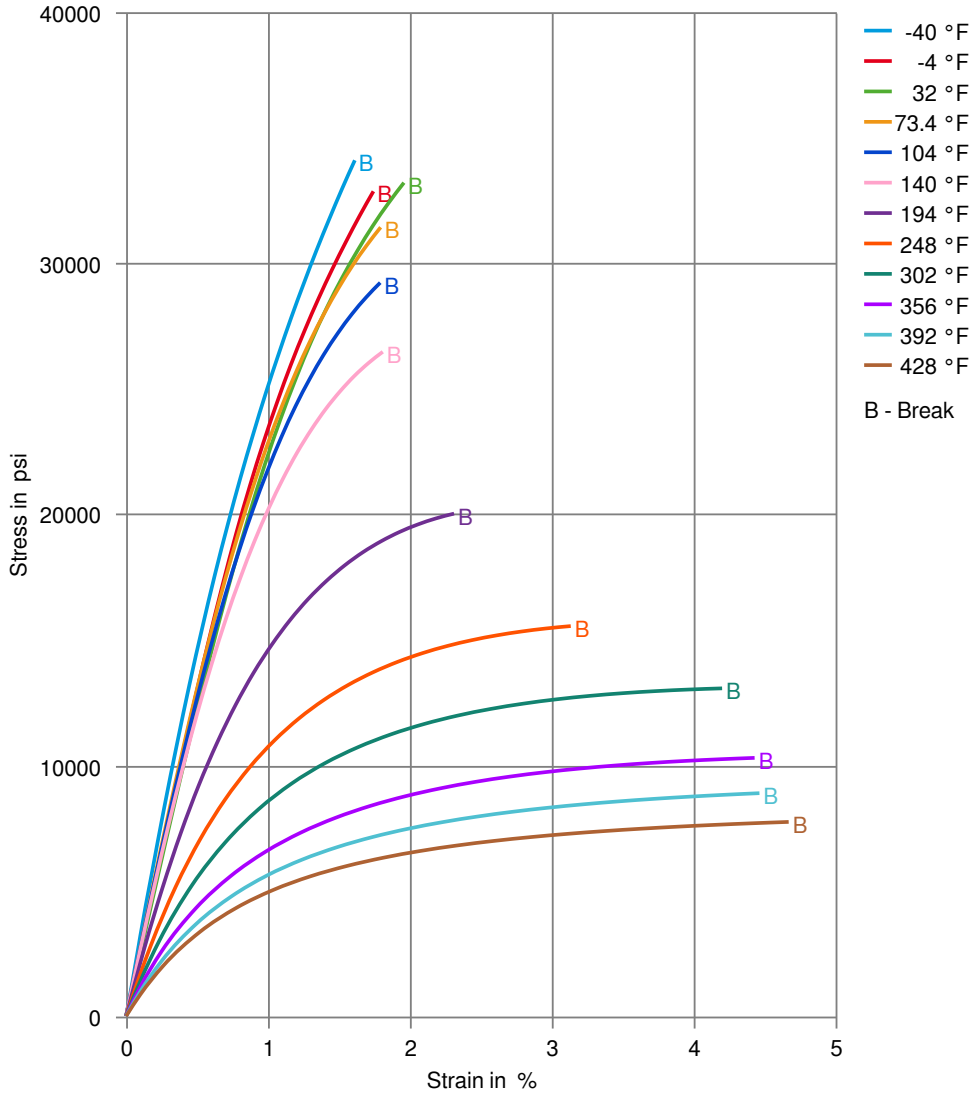
Additional information

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.

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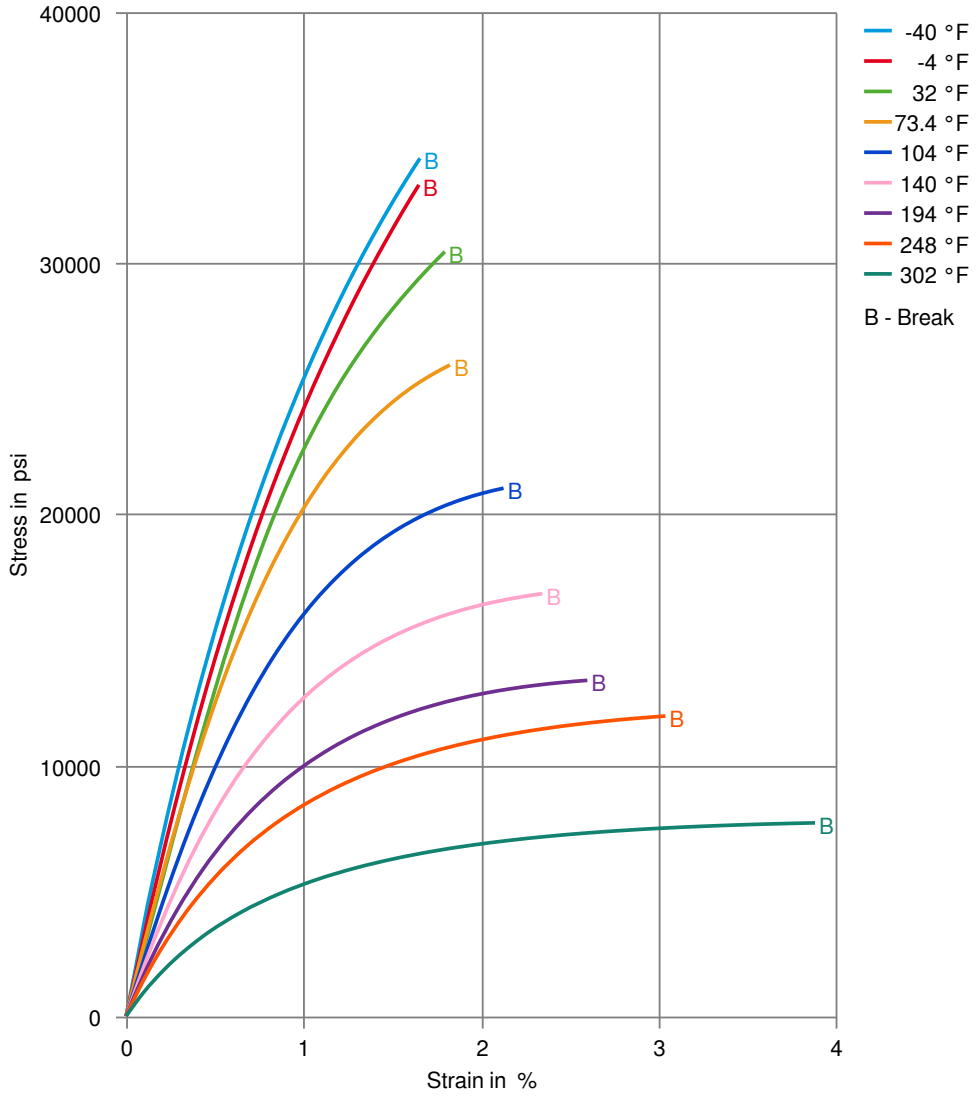
Stress-strain (dry)



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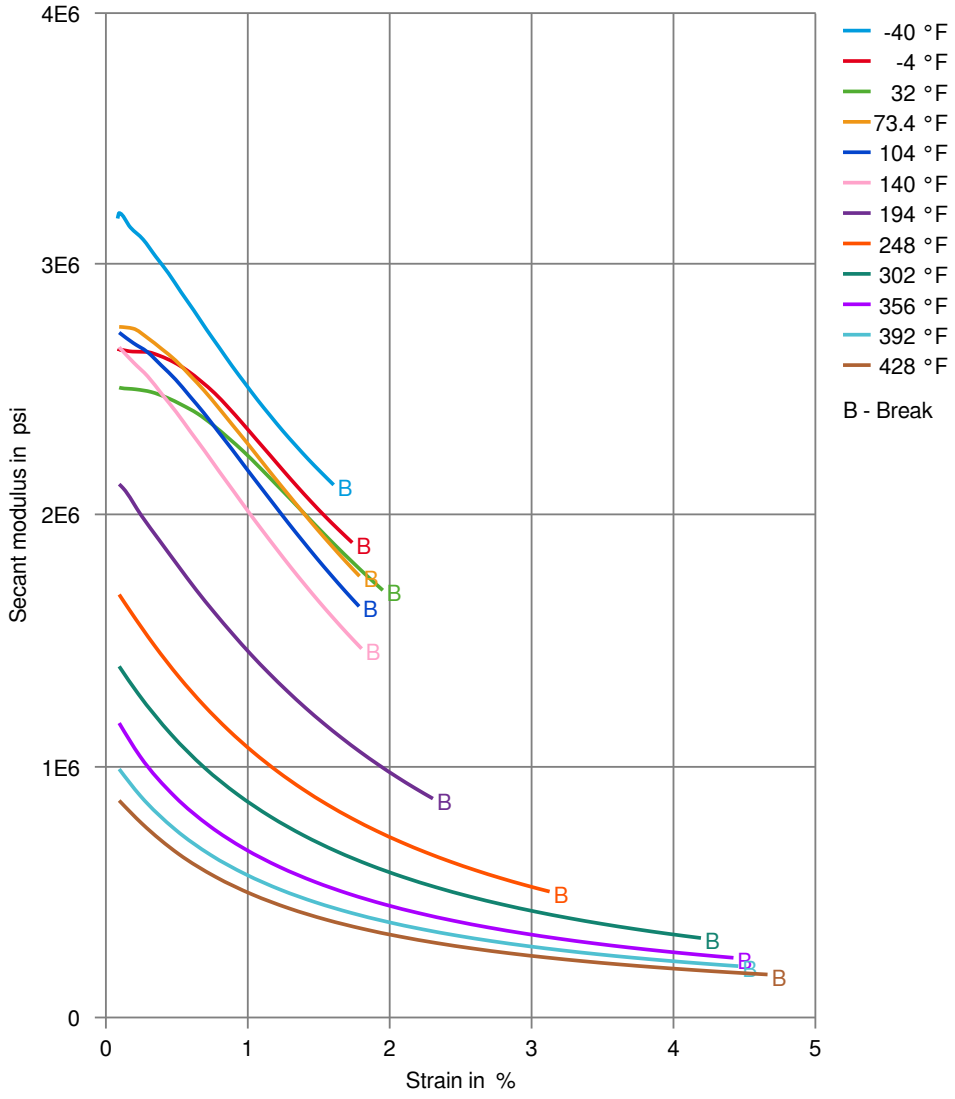
Stress-strain (cond.)



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HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (dry)

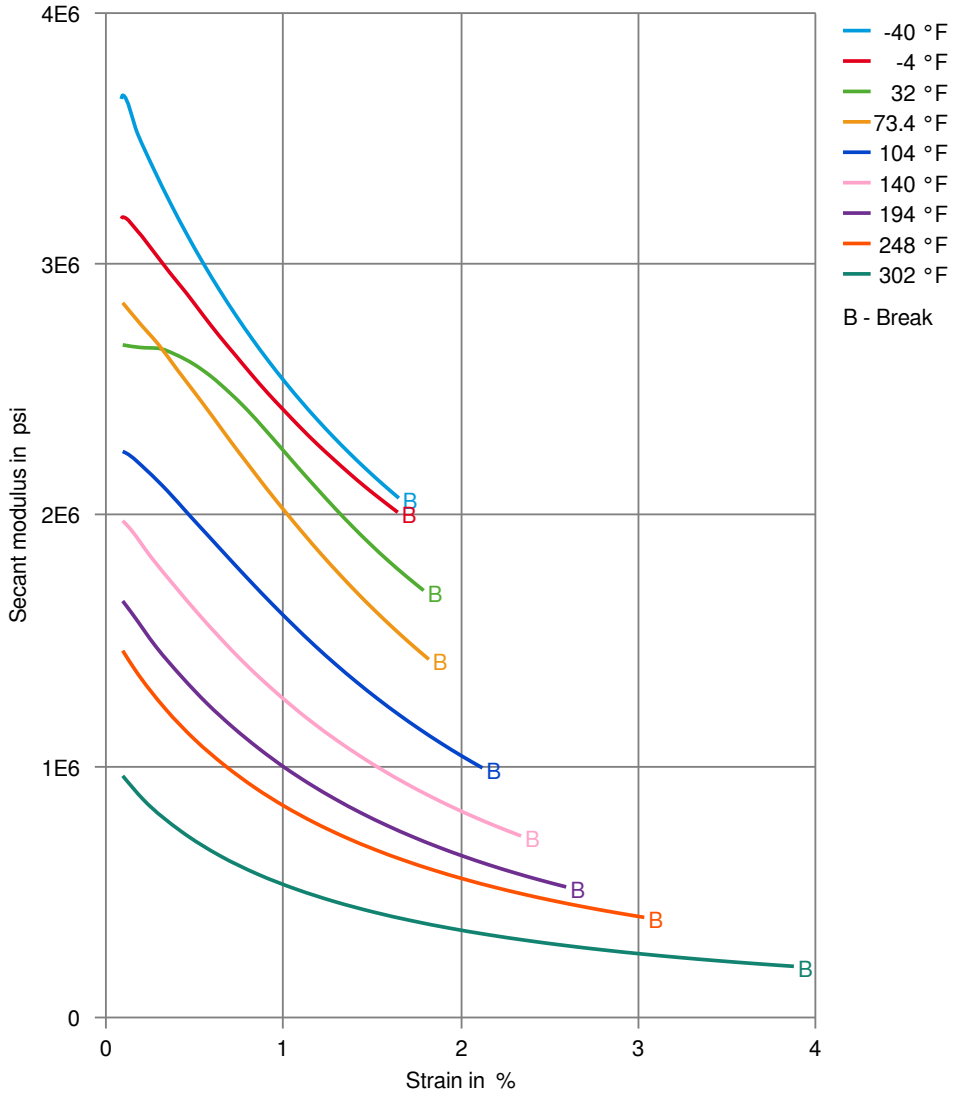


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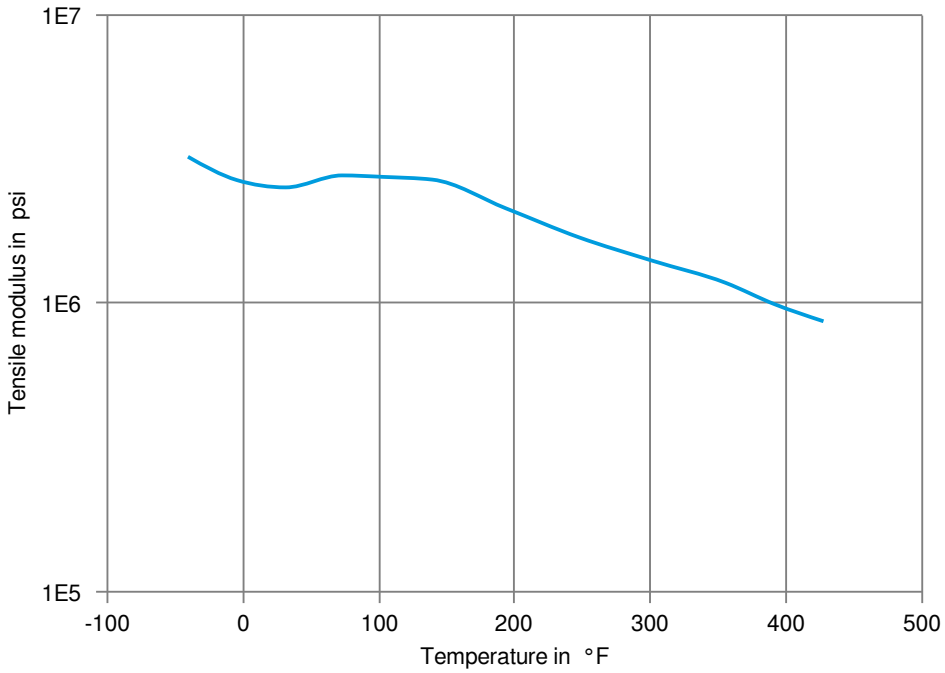
Secant modulus-strain (cond.)



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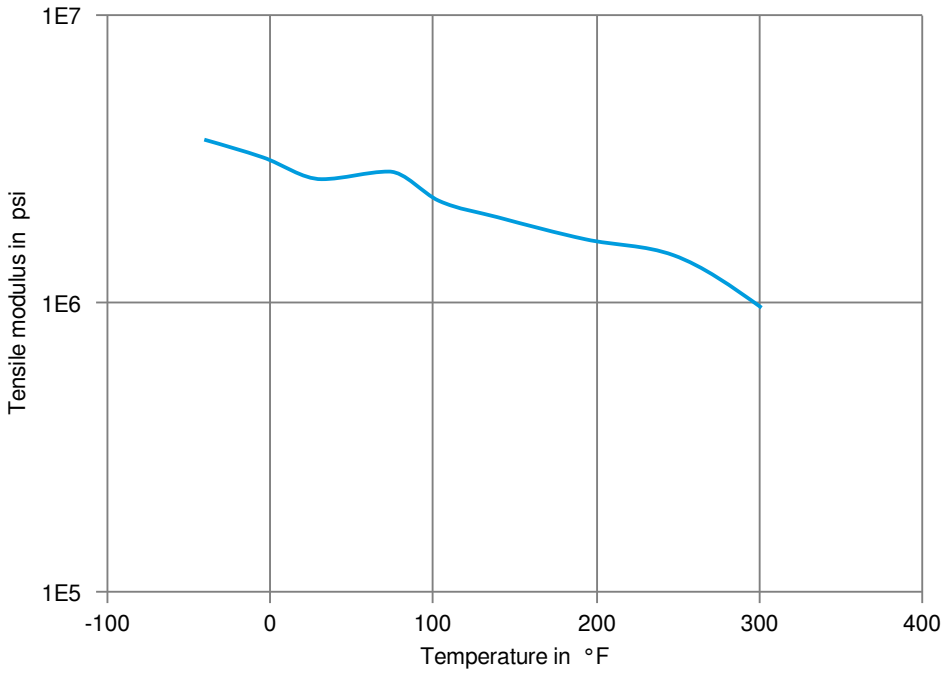
Tensile modulus-temperature (dry)



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Tensile modulus-temperature (cond.)



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