

Ultramid® A3EG6

PA66-GF30

BASF

Glass fibre reinforced injection moulding grade for machinery components and housings of high stiffness and dimensional stability such as lamp socket housings, cooling fans, insulating profile for aluminium window frames, water containers for automotive cooling systems, as well as electrically insulating parts.

The products can also be offered as BMBcert™ and/or Ccycled™. Due to the Massbalance approach the product properties do not change.

Processing/Physical Characteristics	Value	Unit	Test Standard
ASTM Data			
Mold Shrinkage, MD	0.003	mm/mm	ASTM D 955
Density, 73 °F	1360	kg/m³	ASTM D 792
Water Absorption, Equilibrium	5.5	%	ASTM D 570

Rheological properties	dry / cond	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	30 / *	cm³/10min	ISO 1133
Temperature	275 / *	°C	-
Load	5 / *	kg	-
Molding shrinkage, parallel	0.5 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.0 / *	%	ISO 294-4, 2577

Mechanical Properties	dry / cond	Unit	Test Standard
ISO Data			
Tensile Modulus	10000 / 7200	MPa	ISO 527
Stress at Break	190 / 130	MPa	ISO 527
Strain at Break	3 / 5	%	ISO 527
Tensile Creep Modulus, 1000h	* / 5300	MPa	ISO 899-1
Impact Strength (Charpy), +23 °C	85 / 100	kJ/m²	ISO 179/1eU
Impact Strength (Charpy), -30 °C	70 / 70	kJ/m²	ISO 179/1eU
Notched Impact Strength (Charpy), +23 °C	11 / 20	kJ/m²	ISO 179/1eA
Notched Impact Strength (Charpy), -30 °C	10 / 9.5	kJ/m²	ISO 179/1eA
ASTM Data			
Tensile Strength at Break	186 / -	MPa	ASTM D 638
Elongation at Break	3 / -	%	ASTM D 638
Notched Impact Strength (Izod), 1/8 in	112 / -	J/m	ASTM D 256
Notched Impact Strength (Izod), Low-Temperature	91 / -	J/m	ASTM D 256
Temperature	-40	°C	-

Thermal Properties	dry / cond	Unit	Test Standard
ISO Data			
Melting Temperature (10 °C/min)	260 / *	°C	ISO 11357-1/-3
Temp. of deflection under load (1.80 MPa)	250 / *	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	260 / *	°C	ISO 75-1/-2
Vicat softening temperature, 50 °C/h 50N	250 / *	°C	ISO 306
Coeff. of Linear Therm. Expansion, parallel	28 / *	E-6/K	ISO 11359-1/-2
Coeff. of Linear Therm. Expansion, normal	88 / *	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm Nom. Thickn.	HB / *	class	UL 94
Thickness tested	1.6 / *	mm	-
UL recognition	yes / *	-	-
Burning Behav. at thickness h	HB / *	class	UL 94
Thickness tested	0.8 / *	mm	-
UL recognition	yes / *	-	-
Oxygen index	24 / *	%	ISO 4589-1/-2
ASTM Data			
UL 94 Flame rating	HB	-	UL 94
Thickness tested	1.5	mm	-
DTUL @ 66 psi	250	°C	ASTM D 648
DTUL @ 264 psi	250	°C	ASTM D 648
Melting Temperature	260	°C	ASTM D 3418

Electrical Properties	dry / cond	Unit	Test Standard
ISO Data			
Relative permittivity, 100Hz	4.2 / 9.7	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.7 / 4.3	-	IEC 62631-2-1

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Dissipation Factor, 100Hz	120 / 1530	E-4	IEC 62631-2-1
Dissipation Factor, 1MHz	210 / 810	E-4	IEC 62631-2-1
Volume Resistivity	1E13 / 1E10	Ohm*m	IEC 62631-3-1
Surface Resistivity	* / 1E10	Ohm	IEC 62631-3-2
Electric Strength	40 / 37	kV/mm	IEC 60243-1
Comparative tracking index	- / 550	-	IEC 60112
ASTM Data			
Volume Resistivity	1E13 / -	Ohm*cm	ASTM D 257

Other Properties	dry / cond	Unit	Test Standard
ISO Data			
Water Absorption	5.5 / *	%	Sim. to ISO 62
Humidity absorption	1.7 / *	%	Sim. to ISO 62
Density	1360 / -	kg/m³	ISO 1183

Material Specific Properties	dry / cond	Unit	Test Standard
ISO Data			
Viscosity number	145 / *	cm³/g	ISO 307, 1157, 1628

Rheological calculation properties	Value	Unit	Test Standard
ISO Data			
Ejection temperature	195	°C	-

Test specimen production	Value	Unit	Test Standard
ISO Data			
Injection Molding, melt temperature	290	°C	ISO 294
Injection Molding, mold temperature	80	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294

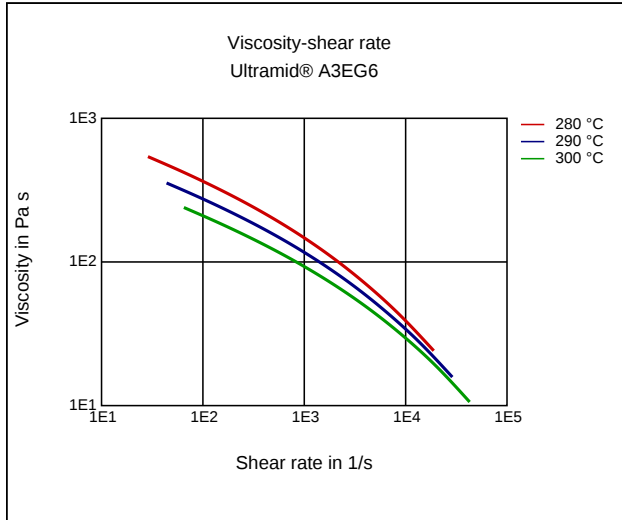
Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	80	°C	-
Pre-drying - Time	4	h	-
Processing humidity	≤0.15	%	-
Melt temperature	280 - 300	°C	-
Mold temperature	80 - 90	°C	-

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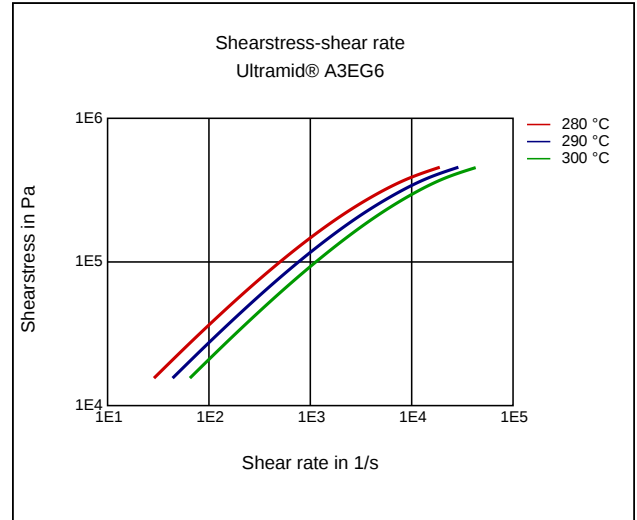
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Diagrams

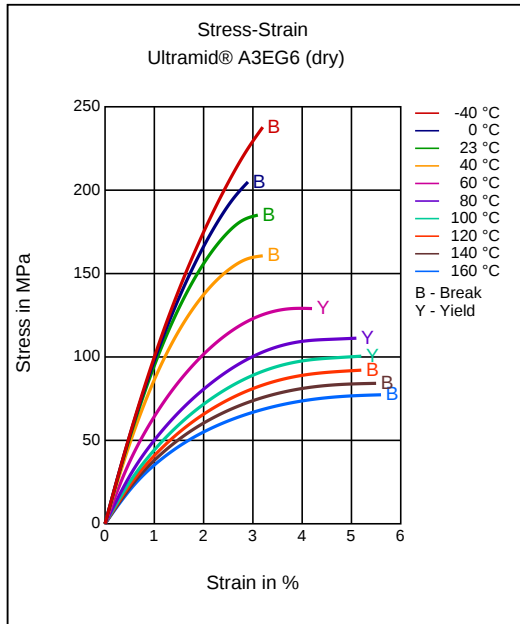
Viscosity-shear rate



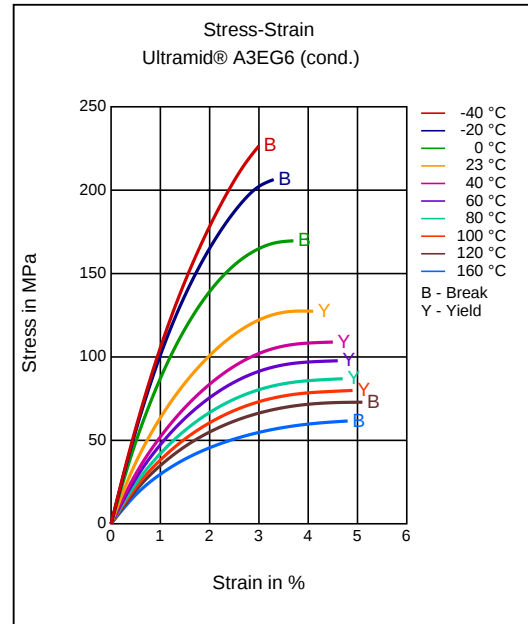
Shearstress-shear rate



Stress-strain



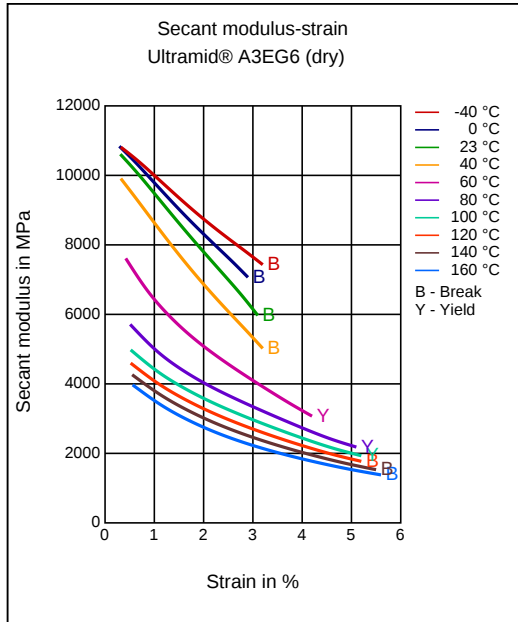
Stress-strain



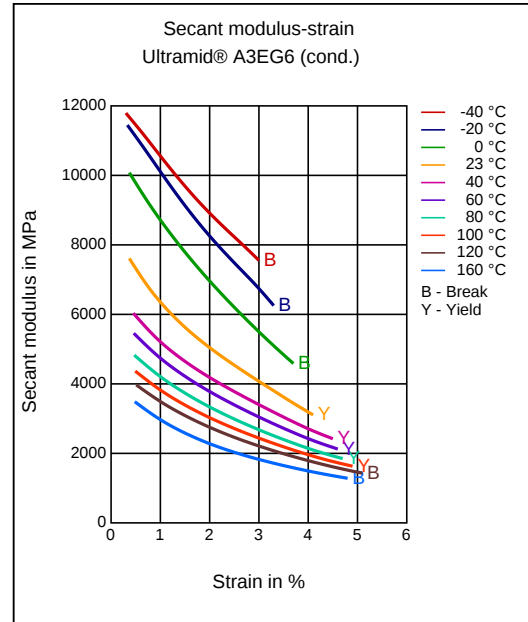
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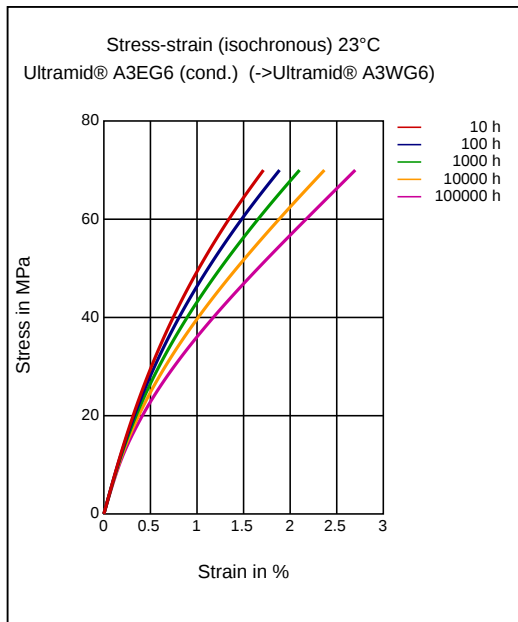
Secant modulus-strain



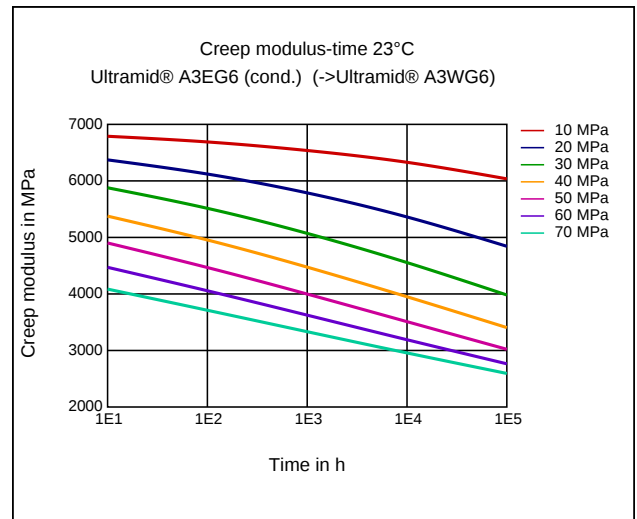
Secant modulus-strain



Stress-strain (isochronous) 23 °C



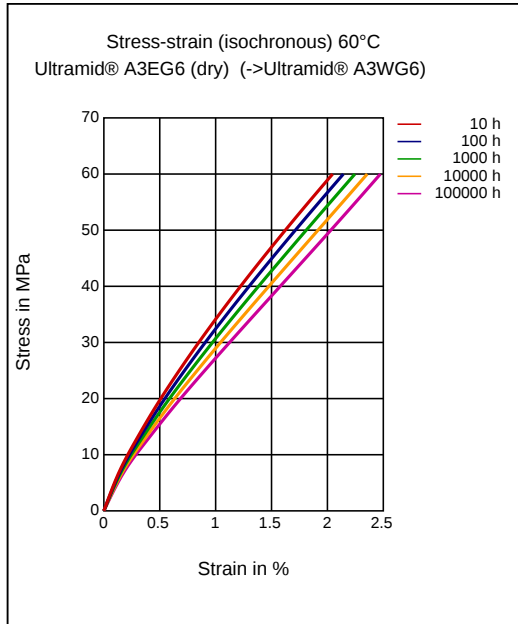
Creep modulus-time 23 °C



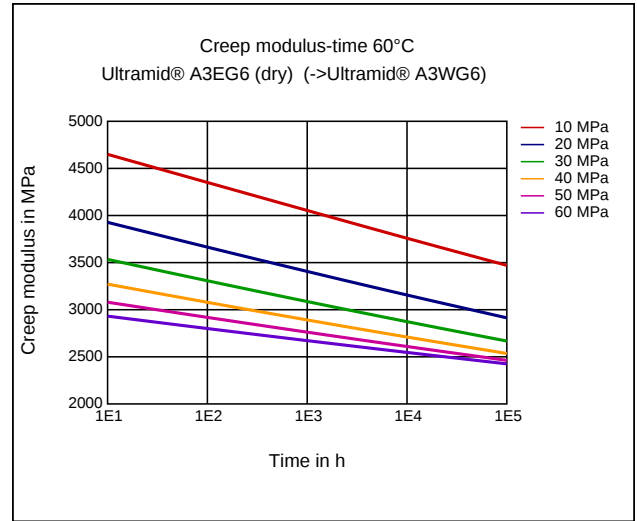
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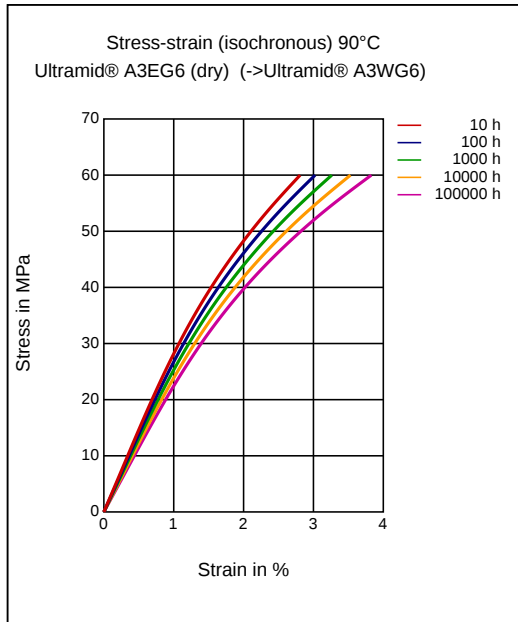
Stress-strain (isochronous) 60 °C



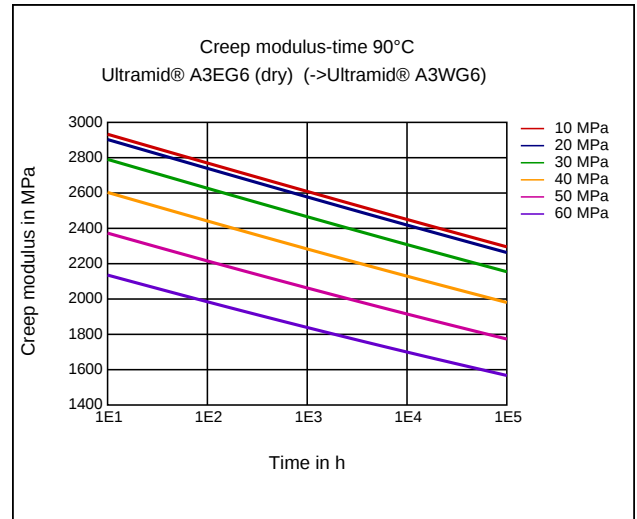
Creep modulus-time 60 °C



Stress-strain (isochronous) 90 °C



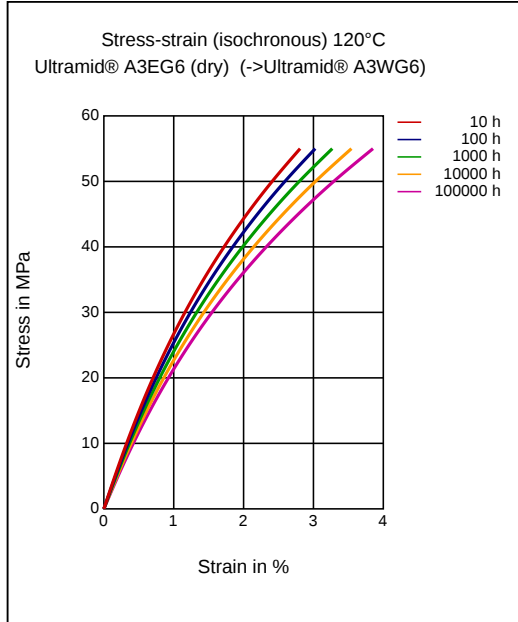
Creep modulus-time 90 °C



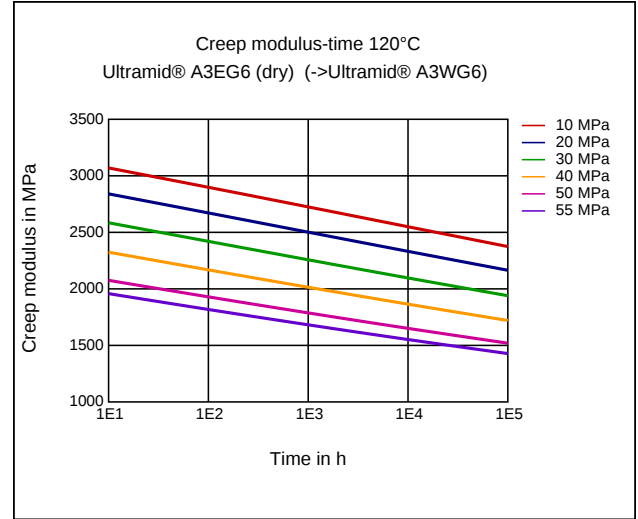
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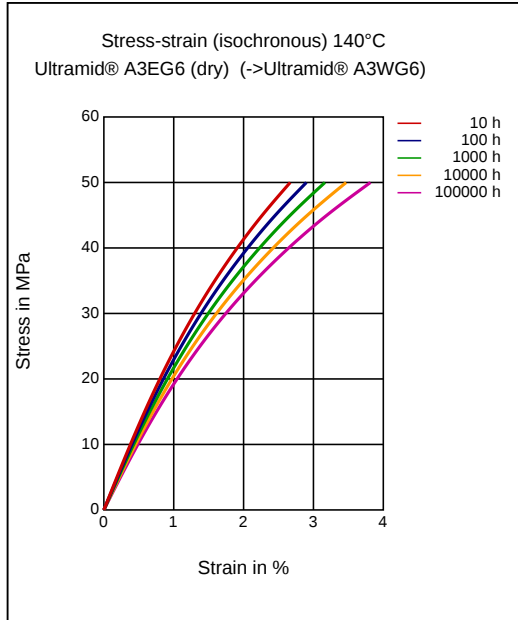
Stress-strain (isochronous) 120 °C



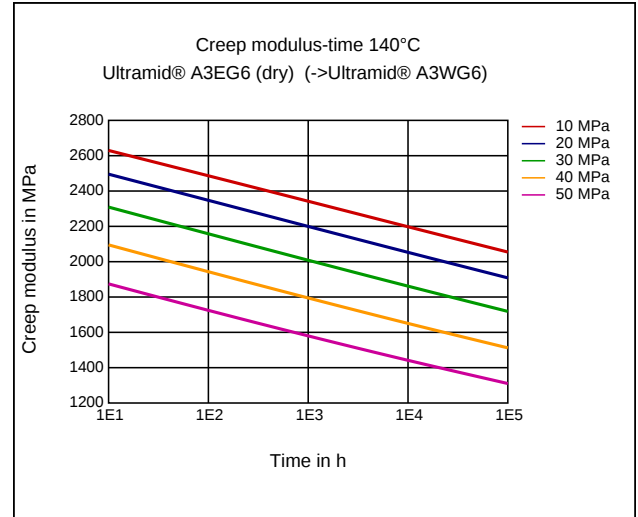
Creep modulus-time 120 °C



Stress-strain (isochronous) 140 °C



Creep modulus-time 140 °C

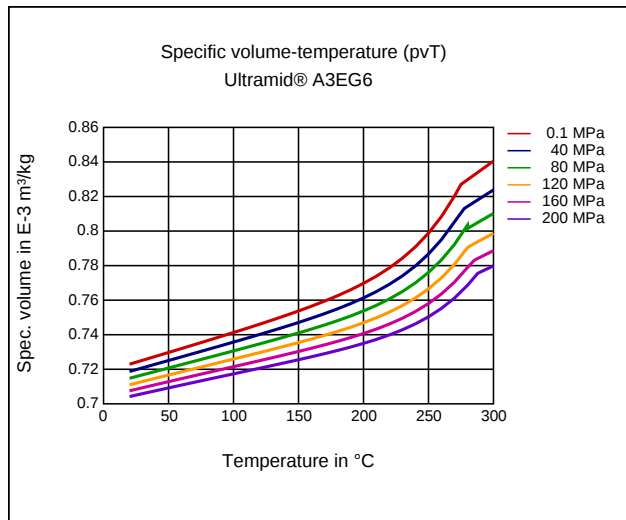


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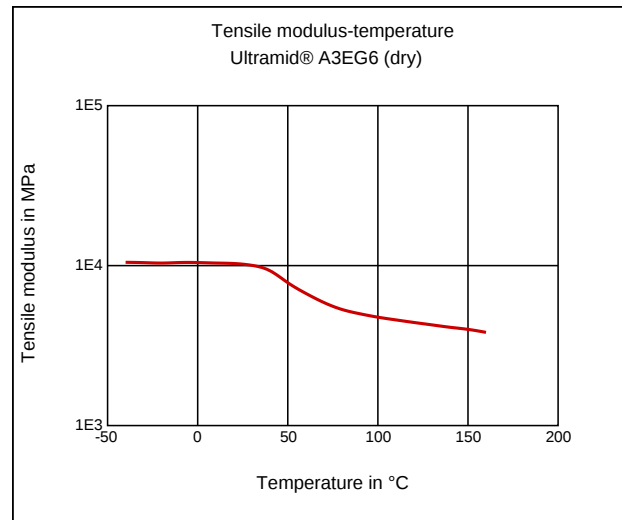
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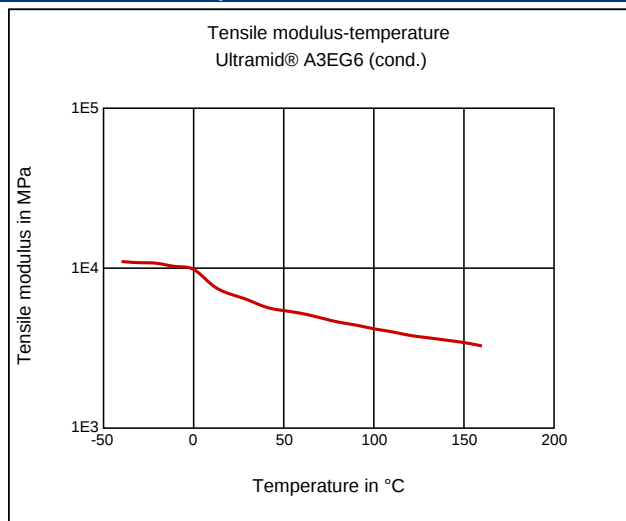
Specific volume-temperature (pvT)



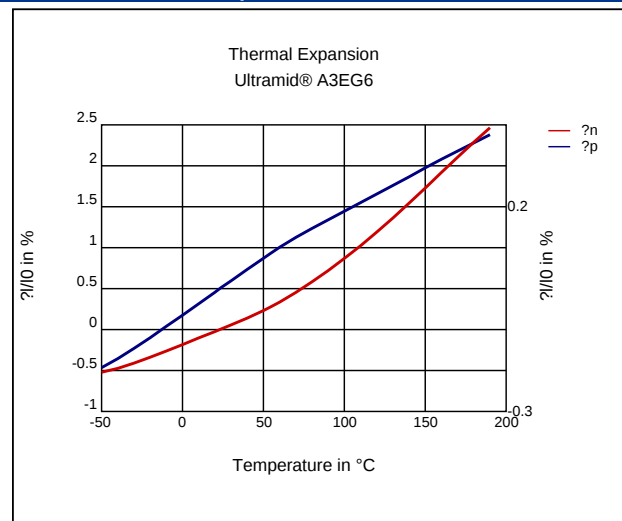
Tensile Modulus-Temperature



Tensile Modulus-Temperature



Coeff. of linear thermal expansion, normal



Characteristics

Processing

Injection Molding, Other Extrusion

Delivery form

Pellets

Additives

Lubricants, Release agent

Special Characteristics

Heat aging stabilized

Applications

Automotive, Electrical and Electronical

Injection Molding

PREPROCESSING

Pre/Post-processing, max. allowed water content: .15 %

Pre/Post-processing, Pre-drying, Temperature: 80 °C

Pre/Post-processing, Pre-drying, Time: 4 h

PROCESSING

injection molding, Melt temperature, range: 280 - 300 °C

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injection molding, Melt temperature, recommended: 290 °C

injection molding, Mold temperature, range: 80 - 90 °C

injection molding, Mold temperature, recommended: 80 °C

injection molding, Dwell time, thermoplastics: 10 min

Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass) (23°C)