

Ultramid® A3Z

PA66-I

BASF

An impact-modified and stabilized injection moulding grade for components and housings with good low temperature impact resistance.

Rheological properties	dry / cond	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	21 / *	cm ³ /10min	ISO 1133
Temperature	275 / *	°C	-
Load	10 / *	kg	-
Molding shrinkage, parallel	2.0 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.6 / *	%	ISO 294-4, 2577

Mechanical Properties	dry / cond	Unit	Test Standard
ISO Data			
Tensile Modulus	1800 / 700	MPa	ISO 527
Yield stress	45 / 30	MPa	ISO 527
Yield strain	4.5 / 40	%	ISO 527
Nominal strain at break	30 / -	%	ISO 527
Tensile Creep Modulus, 1000h	* / 450	MPa	ISO 899-1
Impact Strength (Charpy), +23°C	no break / no break	kJ/m ²	ISO 179/1eU
Impact Strength (Charpy), -30°C	no break / no break	kJ/m ²	ISO 179/1eU
Notched Impact Strength (Charpy), +23°C	90 / 115	kJ/m ²	ISO 179/1eA
Notched Impact Strength (Charpy), -30°C	70 / 70	kJ/m ²	ISO 179/1eA

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)	60 / *	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	125 / *	°C	ISO 75-1/-2
Coeff. of Linear Therm. Expansion, parallel	133 / *	E-6/K	ISO 11359-1/-2
Coeff. of Linear Therm. Expansion, normal	120 / *	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	3.1 / *	mm	-
UL recognition	yes / *	-	-

Electrical Properties	dry / cond	Unit	Test Standard
ISO Data			
Relative permittivity, 1MHz	3.1 / 3.6	-	IEC 62631-2-1
Dissipation Factor, 1MHz	160 / 700	E-4	IEC 62631-2-1
Volume Resistivity	4E12 / 1E10	Ohm*m	IEC 62631-3-1
Surface Resistivity	* / 1E12	Ohm	IEC 62631-3-2
Comparative tracking index	- / 600	-	IEC 60112

Other Properties	dry / cond	Unit	Test Standard
ISO Data			
Water Absorption	7.2 / *	%	Sim. to ISO 62
Humidity absorption	2.3 / *	%	Sim. to ISO 62
Density	1060 / -	kg/m ³	ISO 1183

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	-

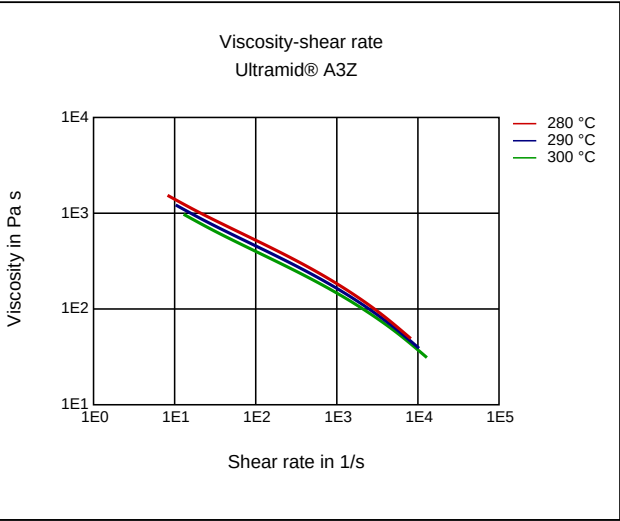
Ultramid® A3Z
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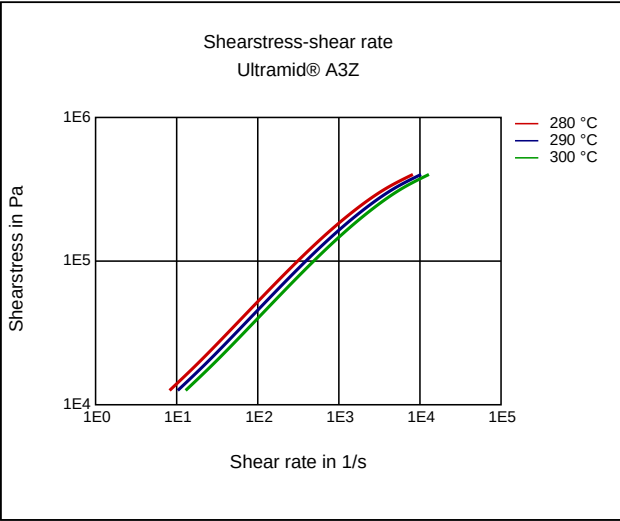
Mold temperature 60 - 80 °C -

Diagrams

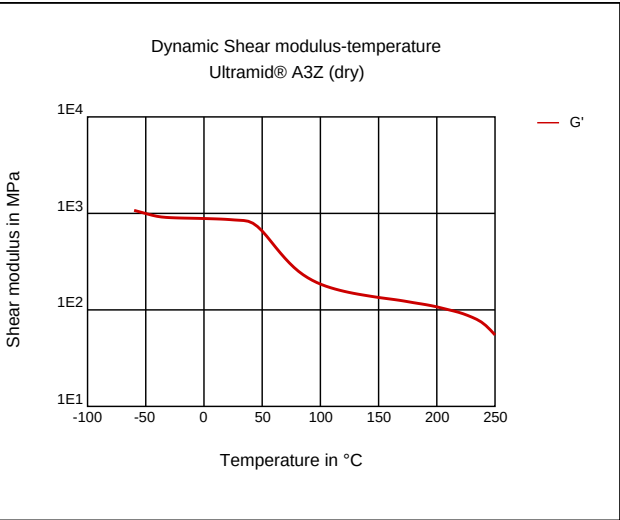
Viscosity-shear rate



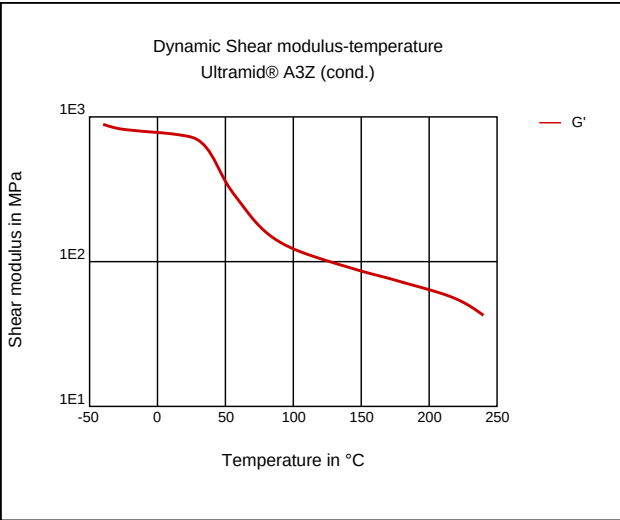
Shearstress-shear rate



Dynamic Shear modulus-temperature



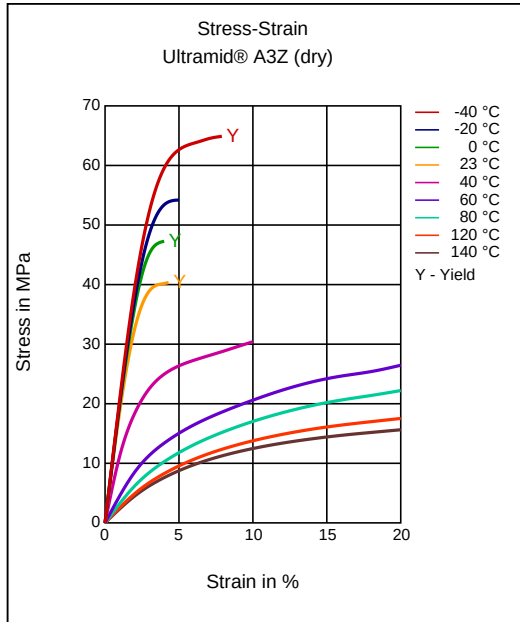
Dynamic Shear modulus-temperature



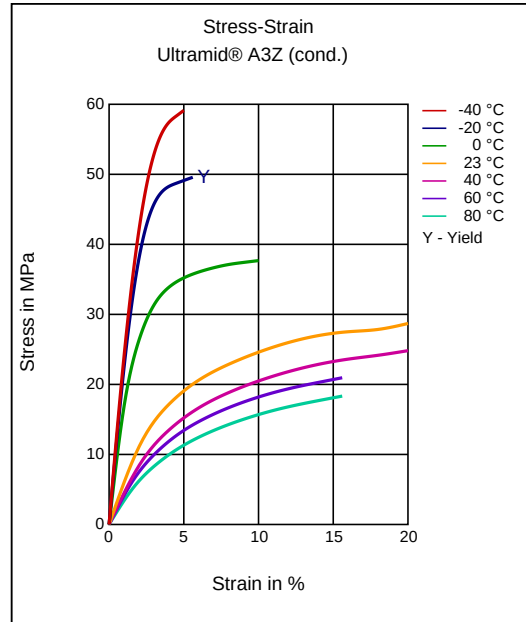
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PA66-I

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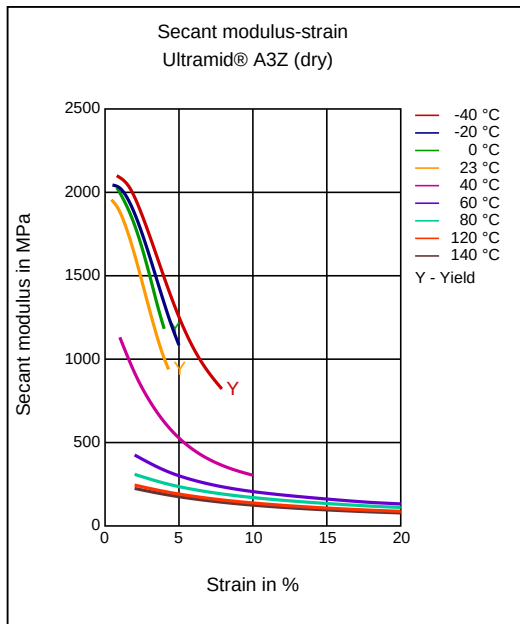
Stress-strain



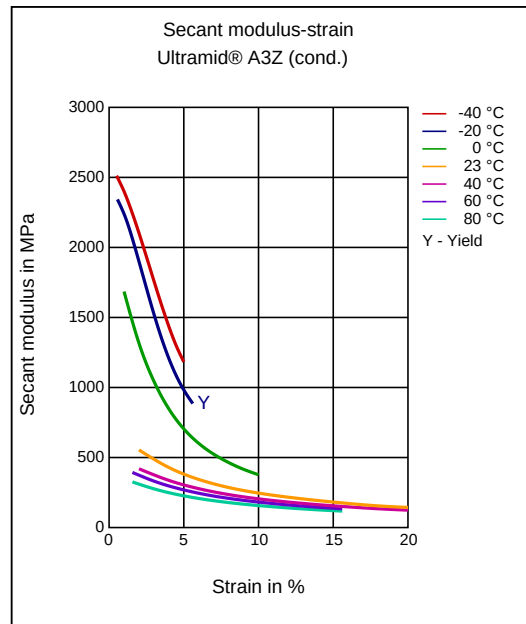
Stress-strain



Secant modulus-strain



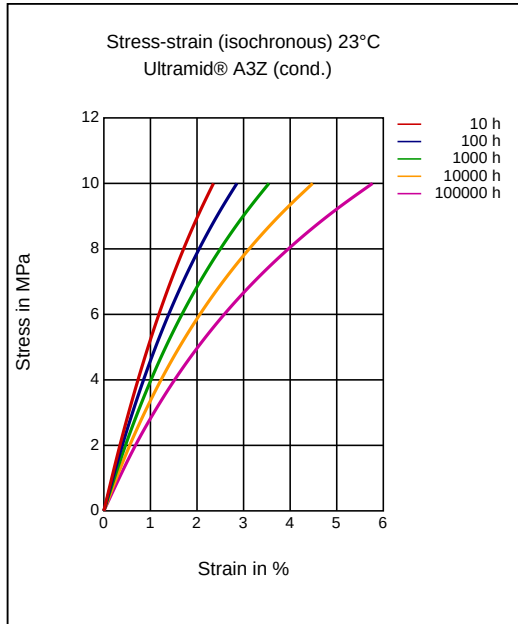
Secant modulus-strain



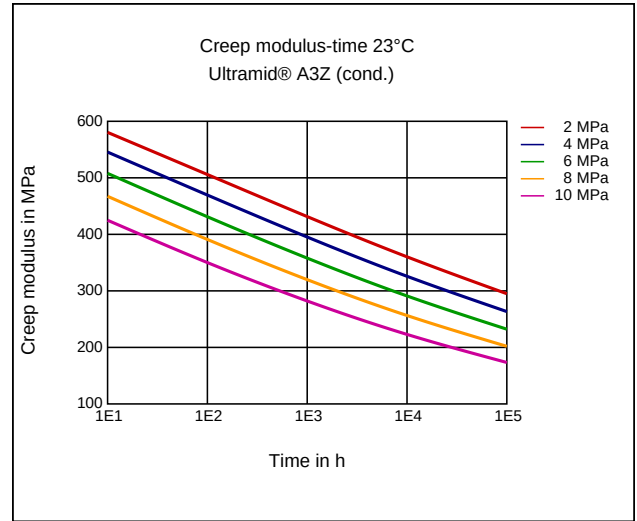
Ultramid® A3Z
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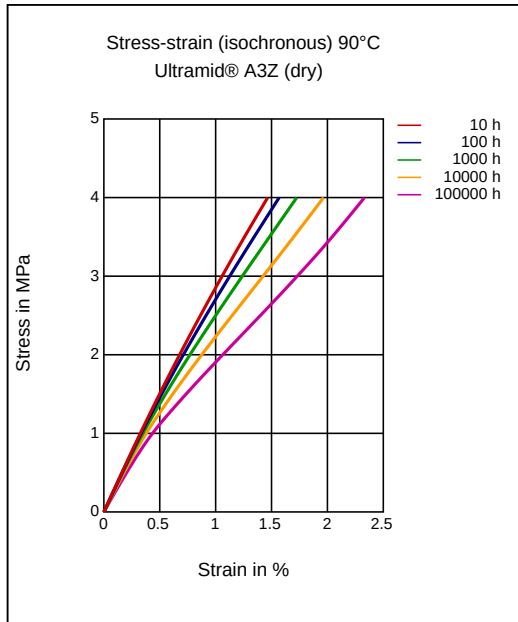
Stress-strain (isochronous) 23°C



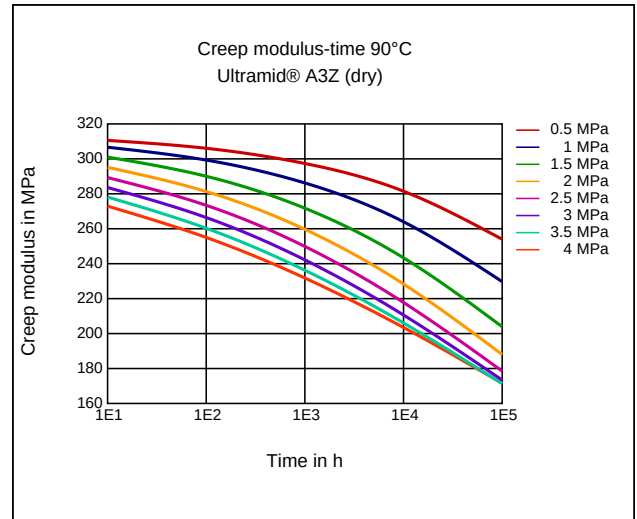
Creep modulus-time 23°C



Stress-strain (isochronous) 90°C



Creep modulus-time 90°C

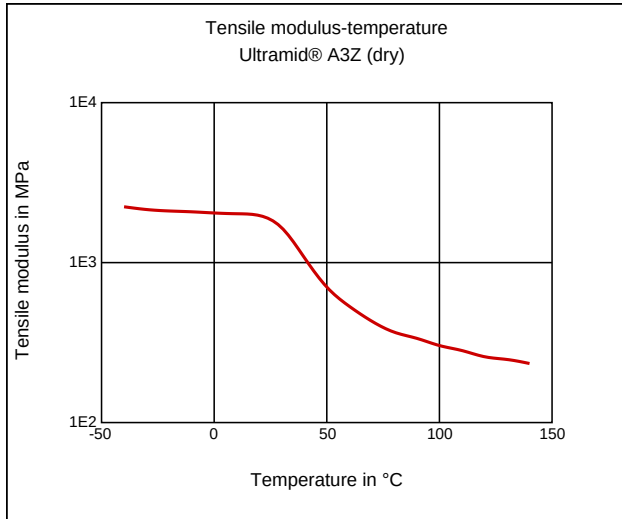


Ultramid® A3Z

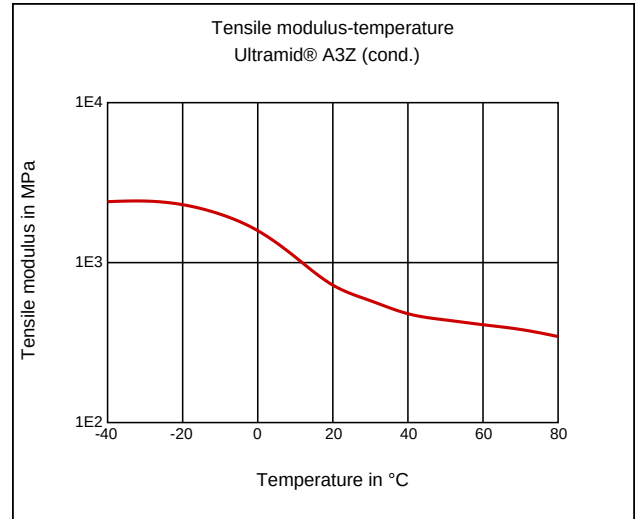
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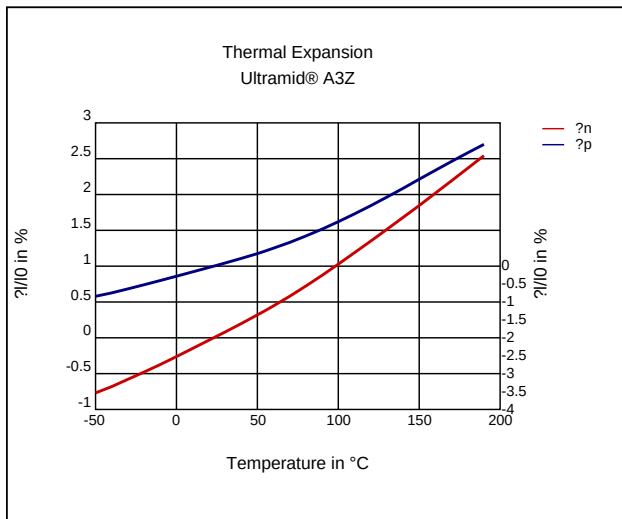
Tensile Modulus-Temperature



Tensile Modulus-Temperature



Coeff. of linear thermal expansion, normal



Characteristics

Processing

Injection Molding

Delivery form

Pellets

Special Characteristics

Impact modified, Heat aging stabilized

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

injection molding, Melt temperature, recommended: 290 °C

injection molding, Mold temperature, range: 60 - 80 °C

injection molding, Mold temperature, recommended: 60 °C

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injection molding, Dwell time, thermoplastics: 10 min

Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass) (23°C)