

Ultradur® S 4090 G6 (PBT+ASA+PET)-GF30

BASF

Low-warpage injection molding grade with 30 % glass fibres for technical parts, for which dimensional stability is very important (e.g. housings, plug-and-socket connectors).

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

Abbreviated designation according to ISO 1043: PBT ASA PET GF30

Processing/Physical Characteristics	Value	Unit	Test Standard
ASTM Data			
Mold Shrinkage, MD	0.003	mm/mm	ASTM D 955
Density, 73 °F	1380	kg/m³	ASTM D 792

Rheological properties	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	20	cm³/10min	ISO 1133
Temperature	275	°C	-
Load	2.16	kg	-
Molding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Molding shrinkage, normal	0.8	%	ISO 294-4, 2577

Mechanical Properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	9700	MPa	ISO 527
Stress at Break	125	MPa	ISO 527
Strain at Break	2.2	%	ISO 527
Tensile Creep Modulus, 1h	7600	MPa	ISO 899-1
Tensile Creep Modulus, 1000h	6700	MPa	ISO 899-1
Impact Strength (Charpy), +23 °C	58	kJ/m²	ISO 179/1eU
Impact Strength (Charpy), -30 °C	50	kJ/m²	ISO 179/1eU
Notched Impact Strength (Charpy), +23 °C	7	kJ/m²	ISO 179/1eA
Notched Impact Strength (Charpy), -30 °C	6.5	kJ/m²	ISO 179/1eA
ASTM Data			
Tensile Modulus	9653	MPa	ASTM D 638
Tensile Strength at Break	125	MPa	ASTM D 638
Elongation at Break	2.2	%	ASTM D 638
Flexural Modulus	8274	MPa	ASTM D 790
Flexural Strength	194	MPa	ASTM D 790

Thermal Properties	Value	Unit	Test Standard
ISO Data			
Melting Temperature (10 °C/min)	223	°C	ISO 11357-1/-3
Temp. of deflection under load (1.80 MPa)	175	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	210	°C	ISO 75-1/-2
Vicat softening temperature, 50 °C/h 50N	160	°C	ISO 306
Coeff. of Linear Therm. Expansion, parallel	25	E-6/K	ISO 11359-1/-2
Coeff. of Linear Therm. Expansion, normal	105	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm Nom. Thickn.	HB	class	UL 94
Thickness tested	1.5	mm	-
Burning Behav. at thickness h	HB	class	UL 94
Thickness tested	0.8	mm	-
ASTM Data			
DTUL @ 66 psi	210	°C	ASTM D 648
DTUL @ 264 psi	177	°C	ASTM D 648
Melting Temperature	223	°C	ASTM D 3418

Electrical Properties	Value	Unit	Test Standard
ISO Data			
Relative permittivity, 100Hz	3.8	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.7	-	IEC 62631-2-1
Dissipation Factor, 100Hz	30	E-4	IEC 62631-2-1
Dissipation Factor, 1MHz	180	E-4	IEC 62631-2-1
Volume Resistivity	>1E13	Ohm*m	IEC 62631-3-1

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Surface Resistivity	1E14	Ohm	IEC 62631-3-2
Electric Strength	39	kV/mm	IEC 60243-1
Comparative tracking index	500	-	IEC 60112

Other Properties	Value	Unit	Test Standard
ISO Data			
Water Absorption	0.4	%	Sim. to ISO 62
Humidity absorption	0.2	%	Sim. to ISO 62
Density	1470	kg/m³	ISO 1183

Material Specific Properties	Value	Unit	Test Standard
ISO Data			
Viscosity number	105	cm³/g	ISO 307, 1157, 1628

Rheological calculation properties	Value	Unit	Test Standard
ISO Data			
Density of melt	1300	kg/m³	-
Thermal Conductivity of Melt	0.22	W/(m K)	-
Spec. heat capacity of melt	1830	J/(kg K)	-
Ejection temperature	160	°C	-

Test specimen production	Value	Unit	Test Standard
ISO Data			
Injection Molding, melt temperature	270	°C	ISO 294
Injection Molding, mold temperature	80	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294

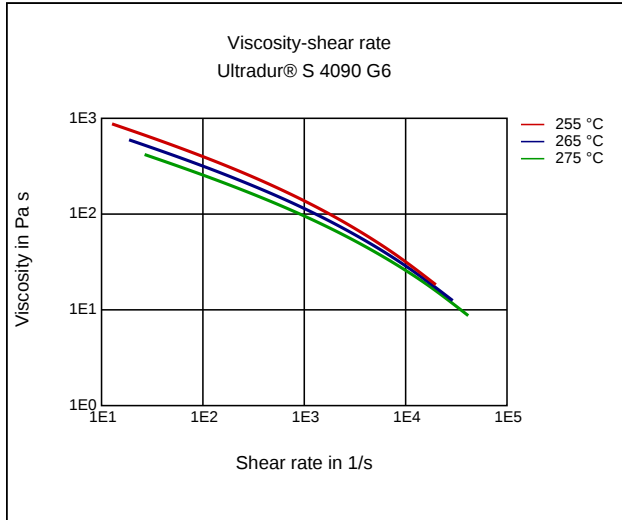
Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	80 - 120	°C	-
Pre-drying - Time	4	h	-
Processing humidity	≤0.04	%	-
Melt temperature	250 - 275	°C	-
Mold temperature	60 - 100	°C	-

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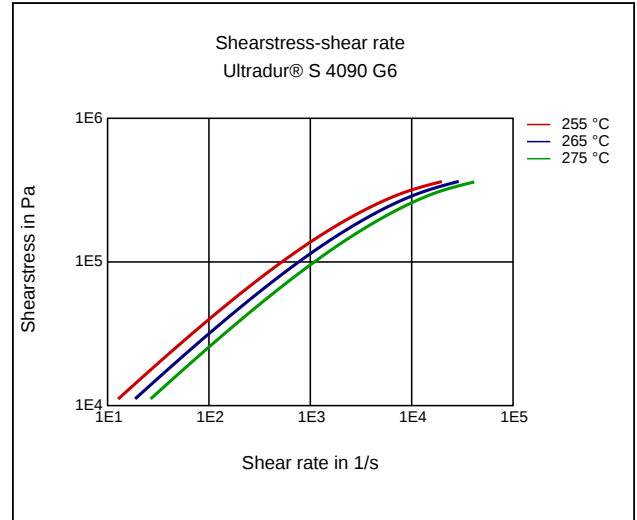
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Diagrams

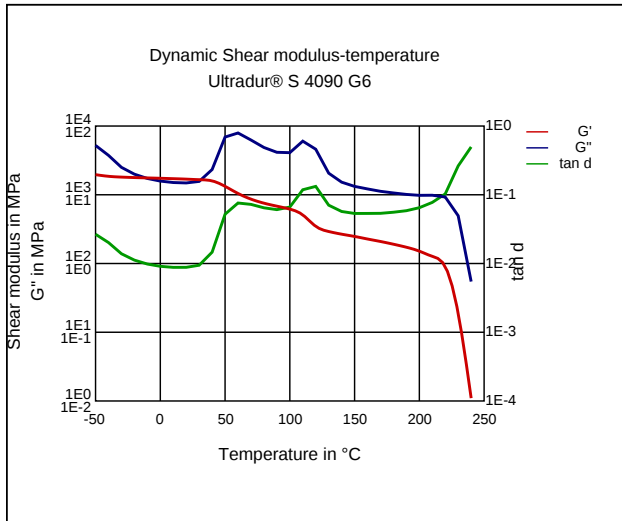
Viscosity-shear rate



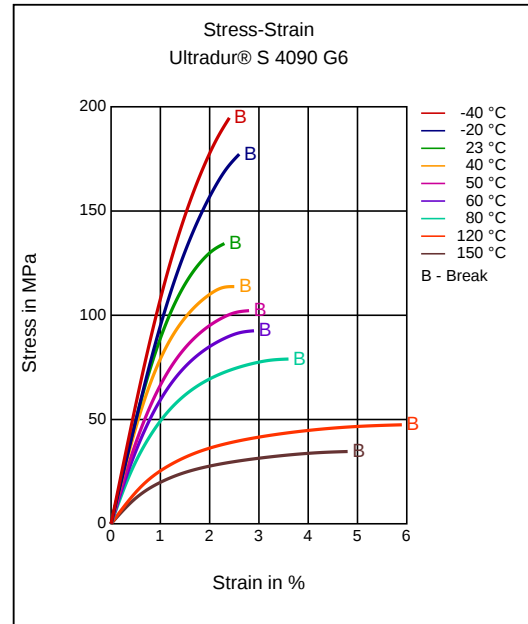
Shearstress-shear rate



Dynamic Shear modulus-temperature



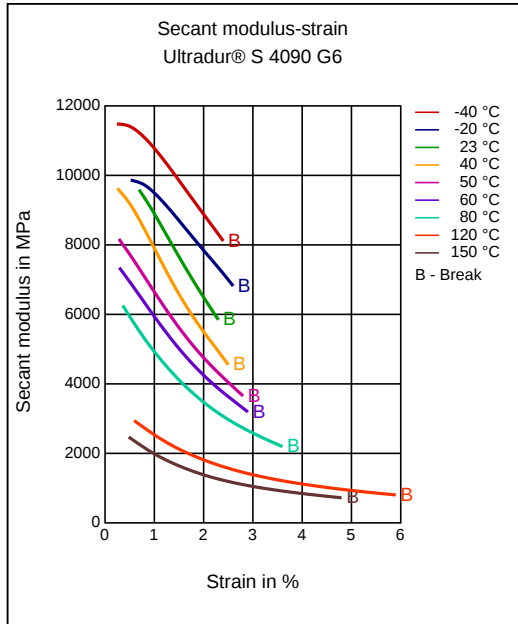
Stress-strain



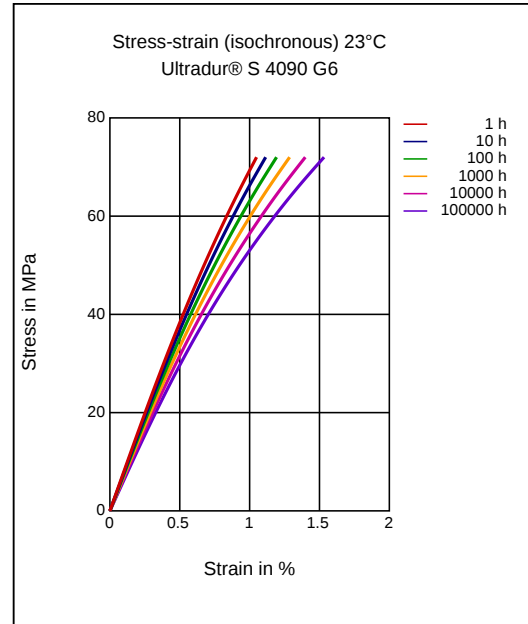
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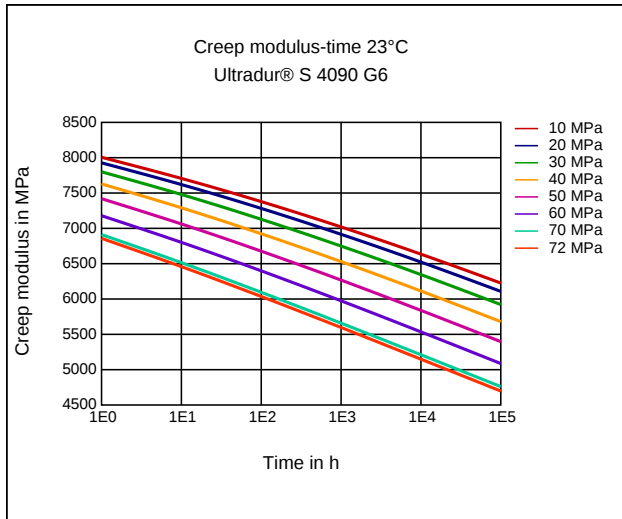
Secant modulus-strain



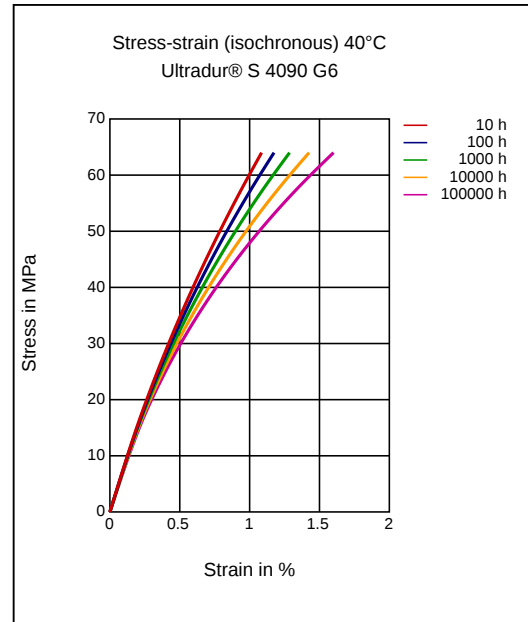
Stress-strain (isochronous) 23 °C



Creep modulus-time 23 °C



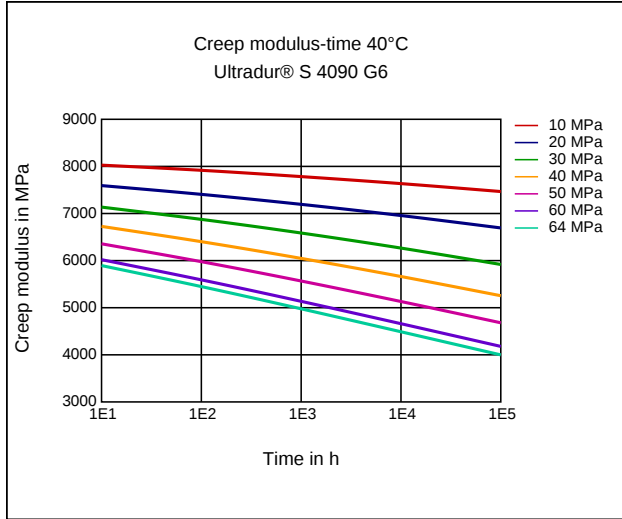
Stress-strain (isochronous) 40 °C



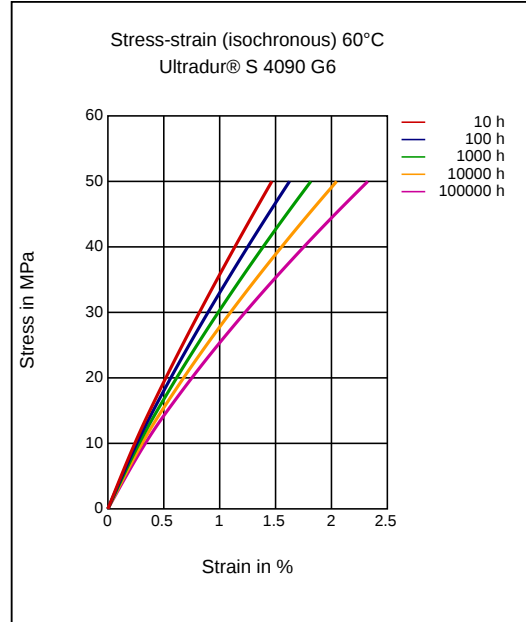
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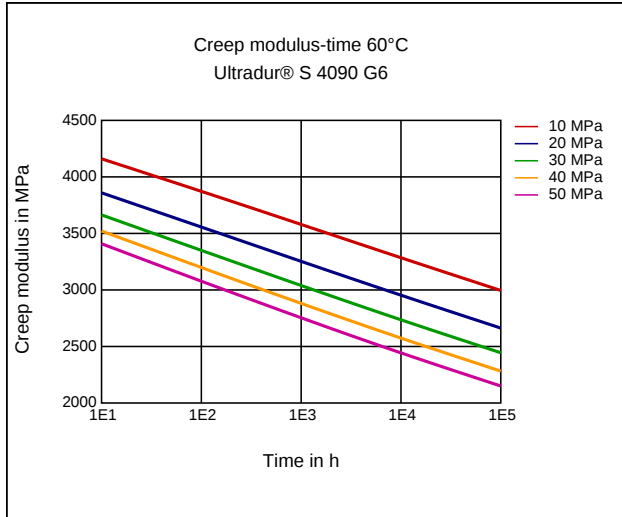
Creep modulus-time 40°C



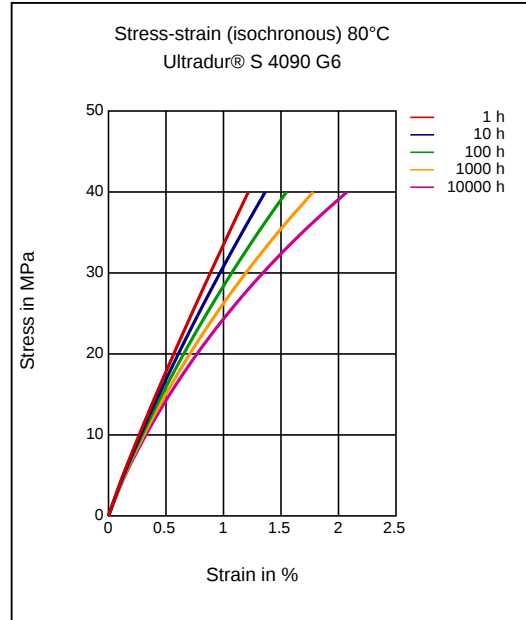
Stress-strain (isochronous) 60°C



Creep modulus-time 60°C



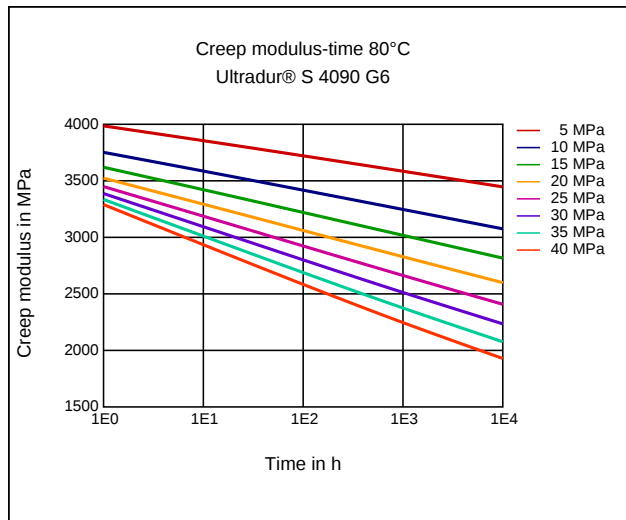
Stress-strain (isochronous) 80°C



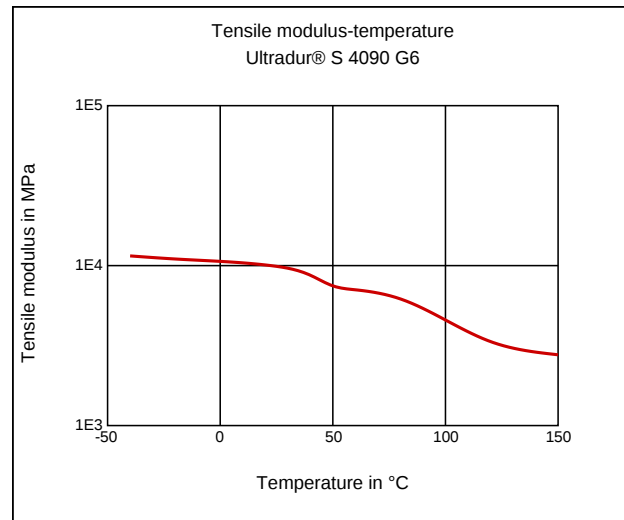
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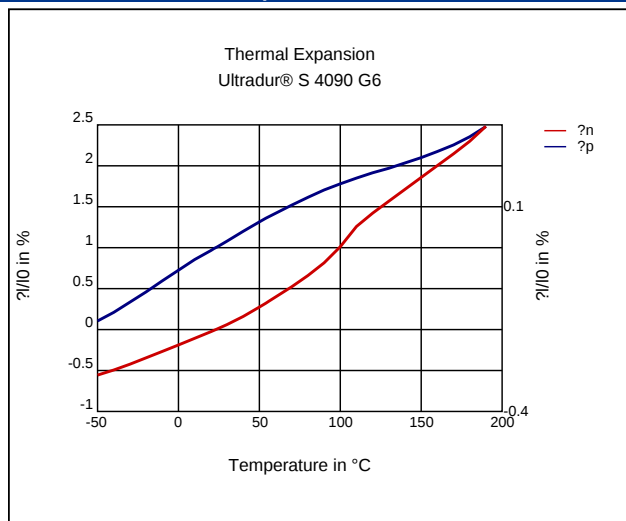
Creep modulus-time 80 °C



Tensile Modulus-Temperature



Coeff. of linear thermal expansion, normal



Characteristics

Processing

Injection Molding

Delivery form

Pellets, Natural Color

Additives

Lubricants

Special Characteristics

Light stabilized or stable to light, UV stablized, Heat aging stabilized

Injection Molding

PREPROCESSING

Pre/Post-processing, max. allowed water content: .04 %

Pre/Post-processing, Pre-drying, Temperature: 80 - 120 °C

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

PROCESSING

injection molding, Melt temperature, range: 250 - 275 °C

injection molding, Melt temperature, recommended: 270 °C

injection molding, Mold temperature, range: 60 - 100 °C

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injection molding, Mold temperature, recommended: 80 °C

Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass) (23°C)