

Ultradur® B 4300 G4

PBT-GF20

BASF

Injection molding grade with 20 % glass fibers for technical parts; rigid, tough and dimensionally stable, e.g. switches, connectors and small automotive parts.

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-GF20

Processing/Physical Characteristics	Value	Unit	Test Standard
ASTM Data			
Mold Shrinkage, MD	0.003	mm/mm	ASTM D 955
Density, 73°F	1450	kg/m³	ASTM D 792

Rheological properties	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	16	cm³/10min	ISO 1133
Temperature	250	°C	-
Load	2.16	kg	-
Molding shrinkage, parallel	0.4	%	ISO 294-4, 2577
Molding shrinkage, normal	1.2	%	ISO 294-4, 2577

Mechanical Properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	7000	MPa	ISO 527
Stress at Break	118	MPa	ISO 527
Strain at Break	3.5	%	ISO 527
Impact Strength (Charpy), +23°C	53	kJ/m²	ISO 179/1eU
Impact Strength (Charpy), -30°C	47	kJ/m²	ISO 179/1eU
Notched Impact Strength (Charpy), +23°C	6	kJ/m²	ISO 179/1eA
Notched Impact Strength (Charpy), -30°C	6	kJ/m²	ISO 179/1eA
ASTM Data			
Tensile Modulus	7515	MPa	ASTM D 638
Tensile Strength at Break	120	MPa	ASTM D 638
Elongation at Break	3	%	ASTM D 638
Flexural Modulus	6143	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)	200	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	220	°C	ISO 75-1/-2
Coeff. of Linear Therm. Expansion, parallel	35	E-6/K	ISO 11359-1/-2
Coeff. of Linear Therm. Expansion, normal	125	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm Nom. Thickn.	HB	class	UL 94
Thickness tested	1.5	mm	-
UL recognition	yes	-	-
Burning Behav. at thickness h	HB	class	UL 94
Thickness tested	0.8	mm	-
UL recognition	yes	-	-
Oxygen index	19.5	%	ISO 4589-1/-2
ASTM Data			
DTUL @ 66 psi	220	°C	ASTM D 648
DTUL @ 264 psi	205	°C	ASTM D 648
Melting Temperature	223	°C	ASTM D 3418

Electrical Properties	Value	Unit	Test Standard
ISO Data			
Relative permittivity, 100Hz	3.7	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.7	-	IEC 62631-2-1
Dissipation Factor, 100Hz	12	E-4	IEC 62631-2-1
Dissipation Factor, 1MHz	150	E-4	IEC 62631-2-1
Volume Resistivity	>1E13	Ohm*m	IEC 62631-3-1
Surface Resistivity	1E13	Ohm	IEC 62631-3-2
Electric Strength	37	kV/mm	IEC 60243-1

Ultradur® B 4300 G4
PBT-GF20

BASF

Comparative tracking index	300	-	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	1450	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	1190	kg/m³	-
Thermal Conductivity of Melt	0.19	W/(m K)	-
Spec. heat capacity of melt	1890	J/(kg K)	-
Ejection temperature	175	°C	-

Test specimen production	Value	Unit	Test Standard
ISO Data			
Injection Molding, melt temperature	260	°C	ISO 294
Injection Molding, mold temperature	80	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294

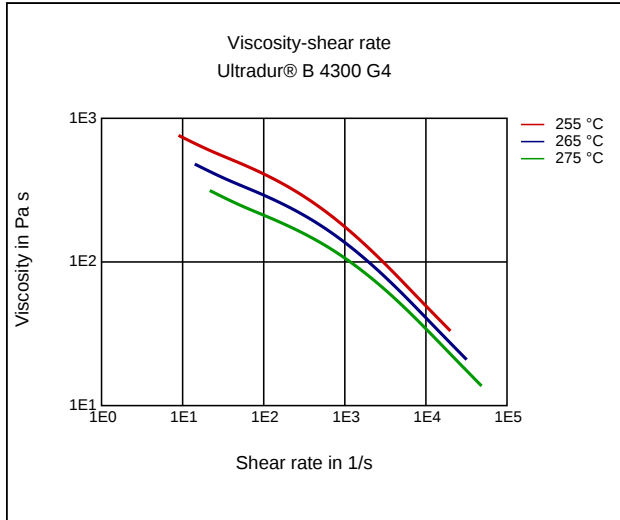
Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	80 - 120	°C	-
Pre-drying - Time	4	h	-
Processing humidity	≤0.04	%	-
Melt temperature	250 - 275	°C	-
Mold temperature	60 - 100	°C	-

Ultradur® B 4300 G4
PBT-GF20

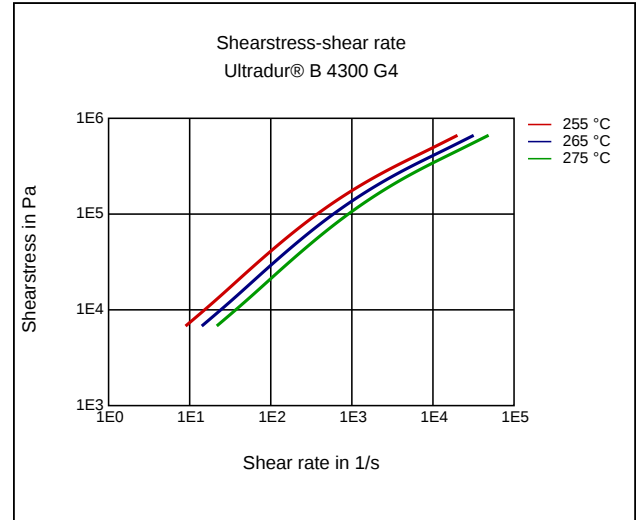
BASF

Diagrams

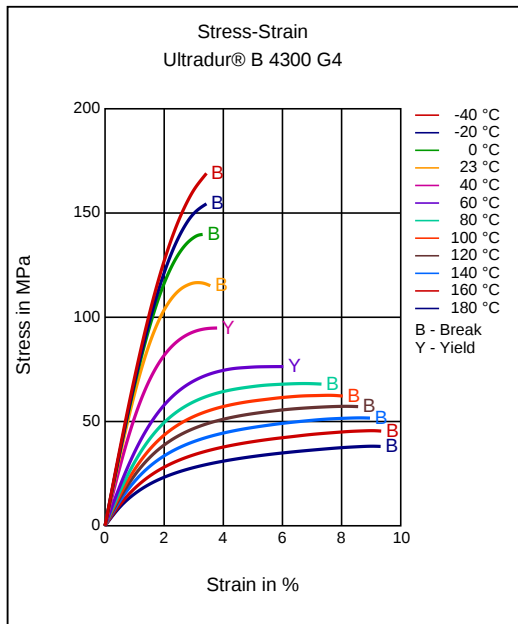
Viscosity-shear rate



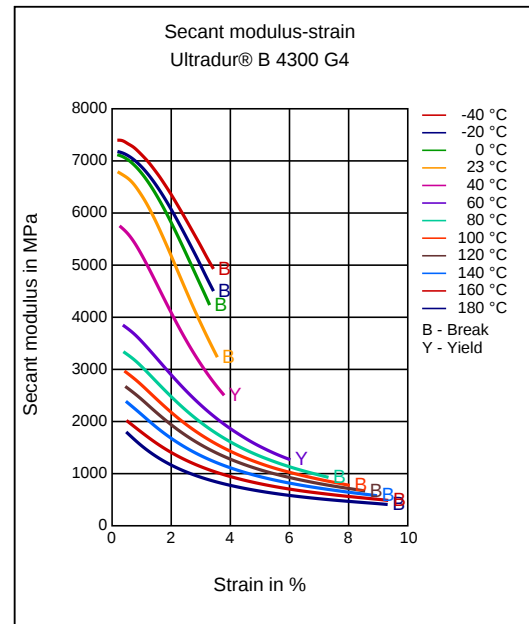
Shearstress-shear rate



Stress-strain



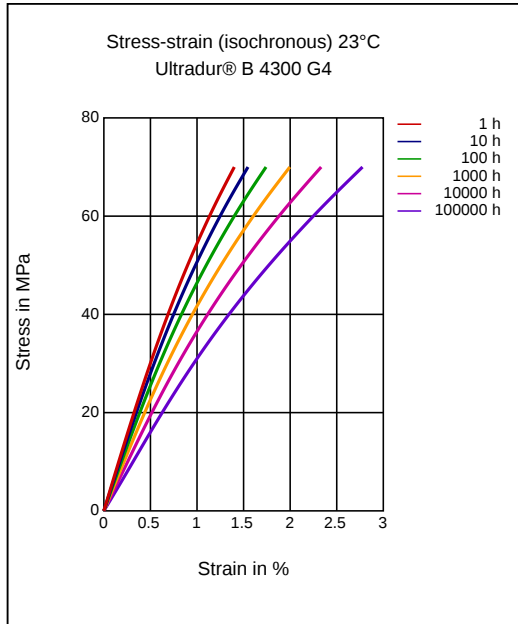
Secant modulus-strain



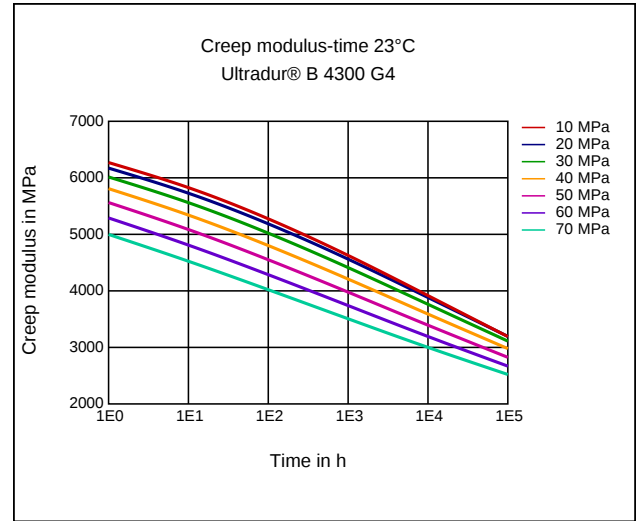
Ultradur® B 4300 G4
PBT-GF20

BASF

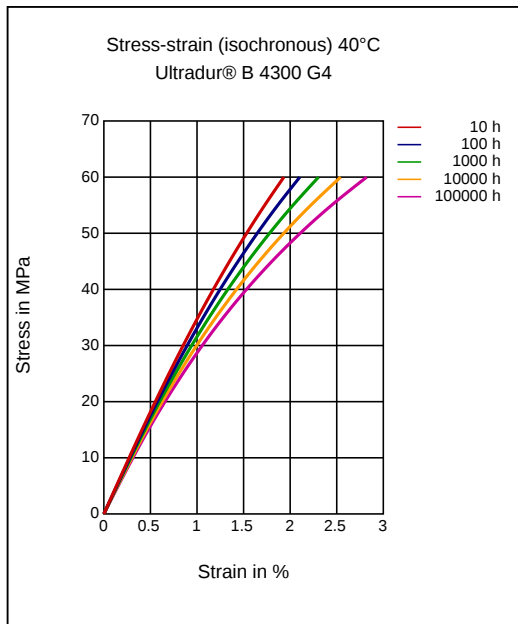
Stress-strain (isochronous) 23°C



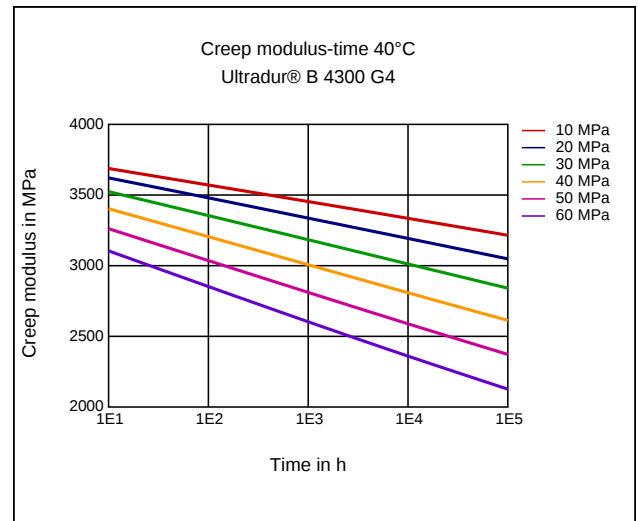
Creep modulus-time 23°C



Stress-strain (isochronous) 40°C



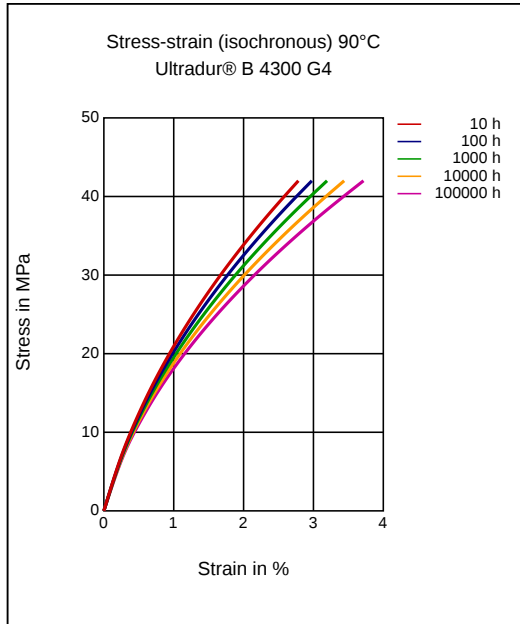
Creep modulus-time 40°C



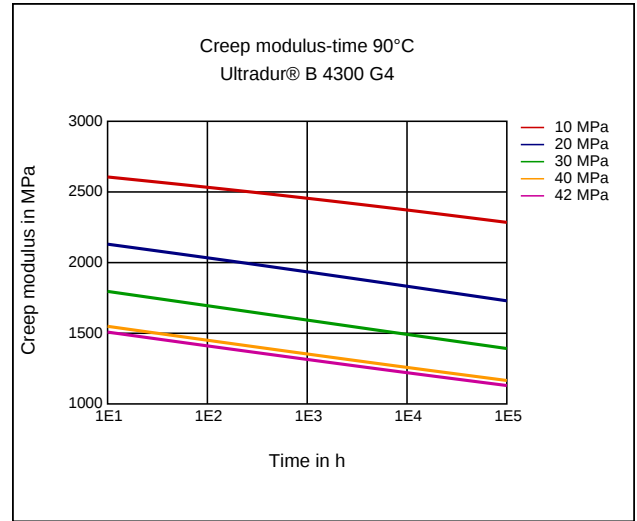
Ultradur® B 4300 G4
PBT-GF20

BASF

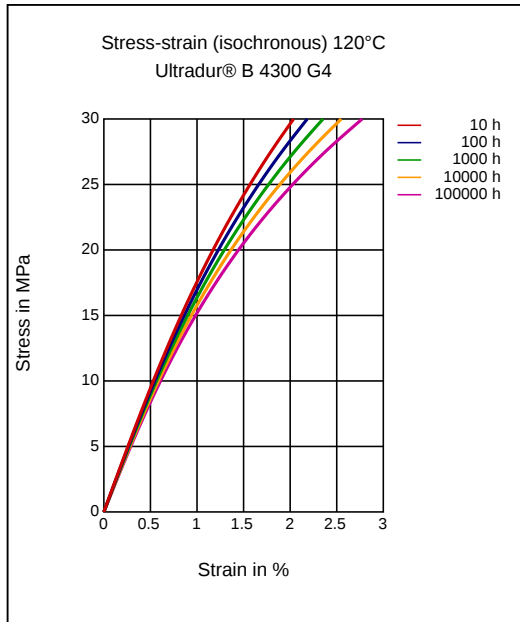
Stress-strain (isochronous) 90 °C



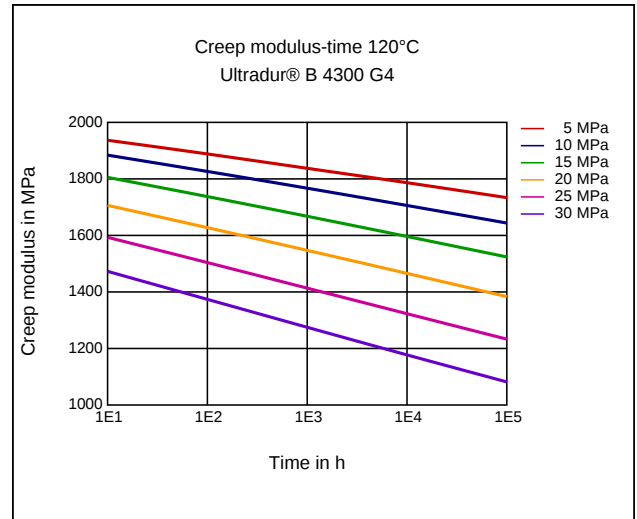
Creep modulus-time 90 °C



Stress-strain (isochronous) 120 °C



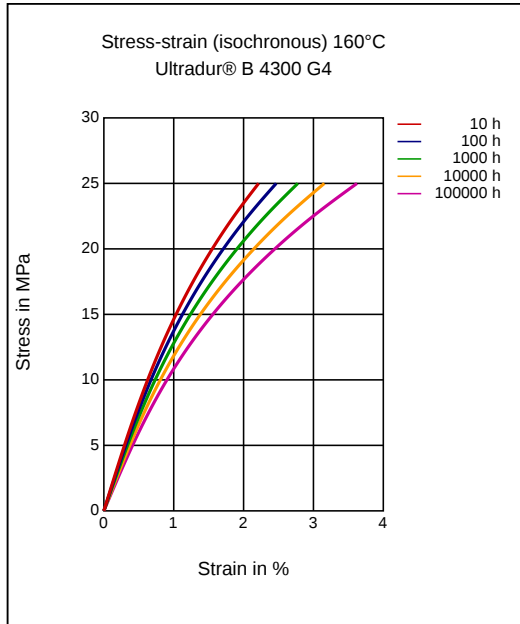
Creep modulus-time 120 °C



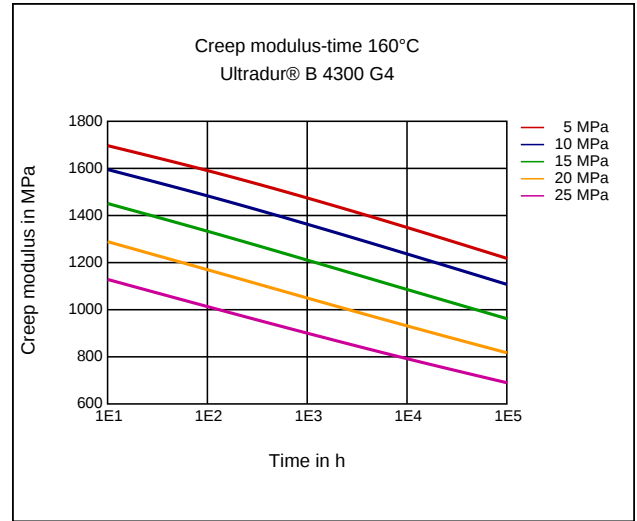
Ultradur® B 4300 G4
PBT-GF20

BASF

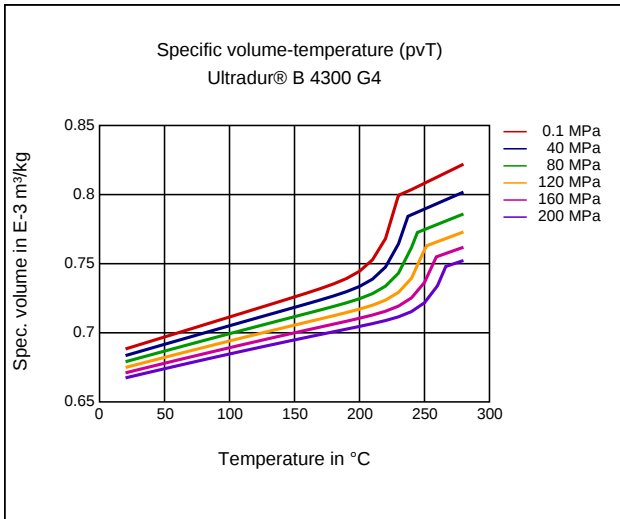
Stress-strain (isochronous) 160°C



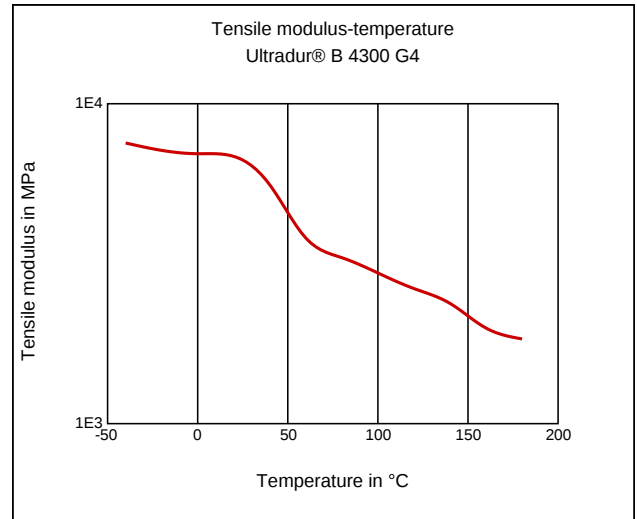
Creep modulus-time 160°C



Specific volume-temperature (pvT)



Tensile Modulus-Temperature

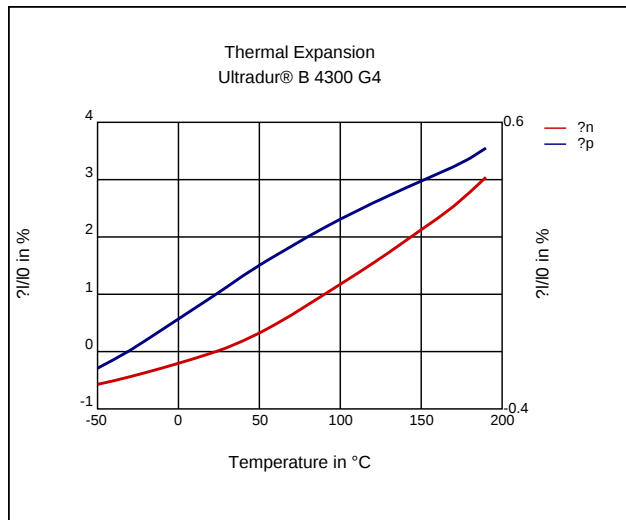


Ultradur® B 4300 G4

PBT-GF20

BASF

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: 260 °C

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

injection molding, Mold temperature, recommended: 80 °C

Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass) (23°C)