

Ultradur® B 4520

PBT

BASF

Standard injection molding grade for the production of various functional 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 1043-1: PBT

Rheological properties	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	20	cm³/10min	ISO 1133
Temperature	250	°C	-
Load	2.16	kg	-
Molding shrinkage, parallel	1.7	%	ISO 294-4, 2577
Molding shrinkage, normal	1.7	%	ISO 294-4, 2577

Mechanical Properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	2400	MPa	ISO 527
Yield stress	55	MPa	ISO 527
Yield strain	3.7	%	ISO 527
Nominal strain at break	>50	%	ISO 527
Tensile Creep Modulus, 1h	1800	MPa	ISO 899-1
Tensile Creep Modulus, 1000h	1200	MPa	ISO 899-1
Impact Strength (Charpy), +23°C	no break	kJ/m²	ISO 179/1eU
Impact Strength (Charpy), -30°C	180	kJ/m²	ISO 179/1eU
Notched Impact Strength (Charpy), +23°C	5	kJ/m²	ISO 179/1eA
Notched Impact Strength (Charpy), -30°C	3	kJ/m²	ISO 179/1eA
Flexural Modulus (23°C)	2400	MPa	ISO 178
Flexural strength	85	MPa	ISO 178
Ball Indentation Hardness	130	MPa	ISO 2039-1
ASTM Data			
Notched Impact Strength (Izod), 1/8 in	50	J/m	ASTM D 256

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)	55	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	165	°C	ISO 75-1/-2
Coeff. of Linear Therm. Expansion, parallel	115	E-6/K	ISO 11359-1/-2
Coeff. of Linear Therm. Expansion, normal	115	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	20	%	ISO 4589-1/-2
Glow Wire (GWFI, Flammability Index)	850	°C	IEC 60695-2-12
GWFI - thickness tested (1)	1.5	mm	-
Glow Wire Ignition Temperature	775	°C	IEC 60695-2-13
GWIT - thickness tested (1)	1.5	mm	-
ASTM Data			
Thermal Conductivity, solid state	0.27	W/(m K)	DIN 52612-1
Specific Heat	1250	J/(kg K)	

Electrical Properties	Value	Unit	Test Standard
ISO Data			
Relative permittivity, 100Hz	3.4	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.3	-	IEC 62631-2-1
Dissipation Factor, 100Hz	20	E-4	IEC 62631-2-1
Dissipation Factor, 1MHz	200	E-4	IEC 62631-2-1
Volume Resistivity	>1E13	Ohm*m	IEC 62631-3-1
Surface Resistivity	1E13	Ohm	IEC 62631-3-2

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Electric Strength	36	kV/mm	IEC 60243-1
Comparative tracking index	550	-	IEC 60112

Other Properties	Value	Unit	Test Standard
ISO Data			
Water Absorption	0.5	%	Sim. to ISO 62
Humidity absorption	0.25	%	Sim. to ISO 62
Density	1300	kg/m³	ISO 1183
Bulk density	750	kg/m³	-

Material Specific Properties	Value	Unit	Test Standard
ISO Data			
Viscosity number	130	cm³/g	ISO 307, 1157, 1628

Rheological calculation properties	Value	Unit	Test Standard
ISO Data			
Density of melt	1060	kg/m³	-
Thermal Conductivity of Melt	0.185	W/(m K)	-
Spec. heat capacity of melt	2130	J/(kg K)	-
Ejection temperature	160	°C	-

Test specimen production	Value	Unit	Test Standard
ISO Data			
Injection Molding, melt temperature	260	°C	ISO 294
Injection Molding, mold temperature	60	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294

Processing Recommendation Injection Molding	Value	Unit	Test Standard
Processing humidity	≤0.04	%	-
Melt temperature	250 - 275	°C	-
Mold temperature	40 - 70	°C	-

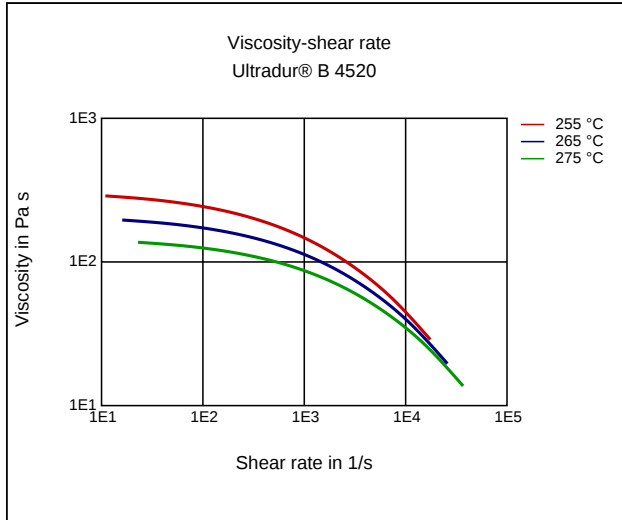
Processing Recommendation Extrusion	Value	Unit	Test Standard
Processing humidity	≤0.04	%	-
Melt temperature	250 - 275	°C	-

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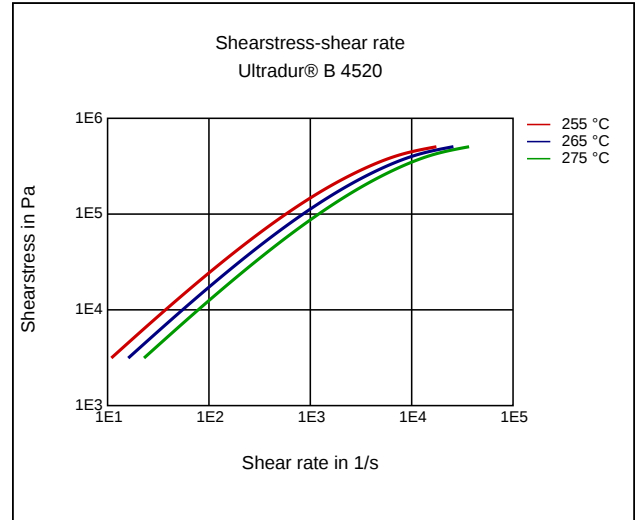
BASF

Diagrams

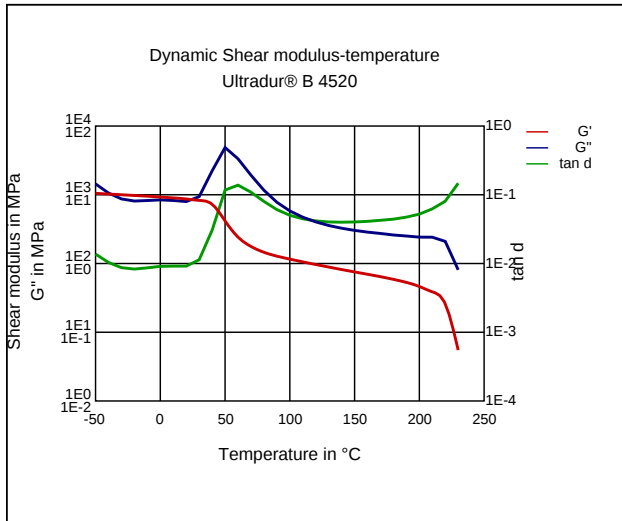
Viscosity-shear rate



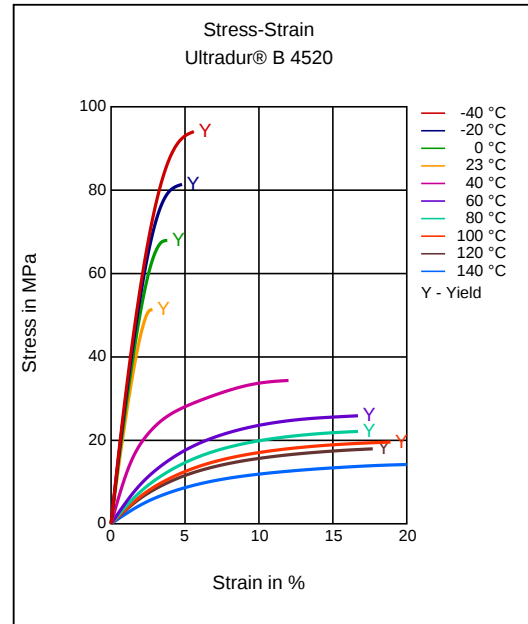
Shearstress-shear rate



Dynamic Shear modulus-temperature



Stress-strain

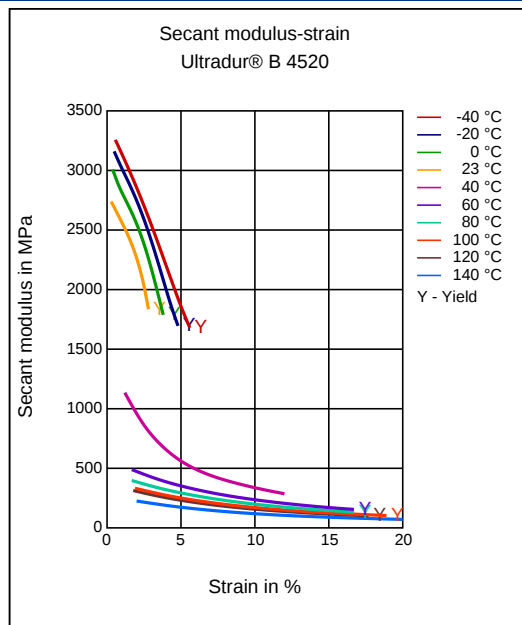


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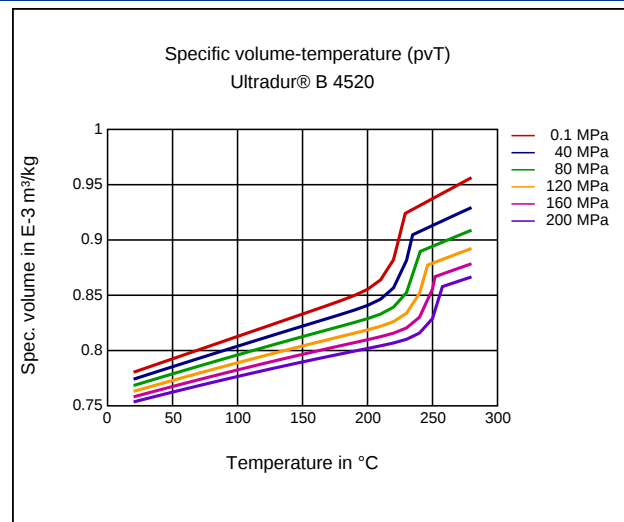
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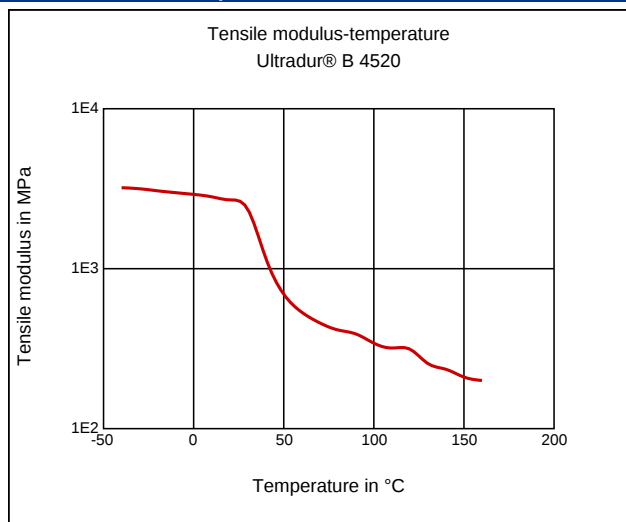
Secant modulus-strain



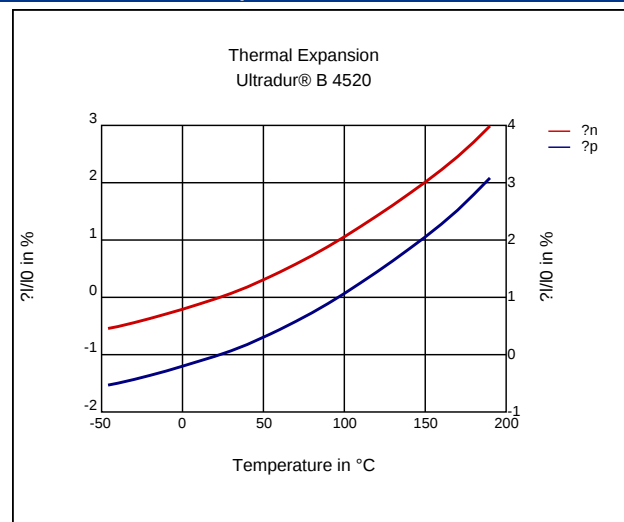
Specific volume-temperature (pvT)



Tensile Modulus-Temperature



Coeff. of linear thermal expansion, normal



Characteristics

Processing

Injection Molding, Other Extrusion

Delivery form

Pellets, Black, Natural Color

Additives

Lubricants

Special Characteristics

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

Applications

Automotive

Injection Molding

PREPROCESSING

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

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

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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: 40 - 70 °C

injection molding, Mold temperature, recommended: 60 °C

Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass) (23°C)