

Ultradur® B 4520 FC Aqua

PBT

BASF

Ultradur® B4520 FC Aqua UN is suitable for plastic parts in applications, where material approval regarding drinking water contact and direct food contact is a mandatory requirement.

The product is approved according to

- 21 CFR FDA §177.1660 "Poly(tetramethylene terephthalate)";
- European Food Contact European Food Contact Commission Regulation (EU) N°10/2011;
- GMP (EC) N°2023/2006;

and suitable for drinking water contact in accordance with

- KTW-BWGL;
- WRAS (approval);
- ACS (disclosure of ingredients);
- NSF (disclosure of ingredients).

For questions regarding the compliance with further regulations, and certificates, please contact your local BASF representative or Plastics Safety (E-Mail: plastics.safety@basf.com).

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

Rheological properties	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	20	cm ³ /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/m ²	ISO 179/1eU
Impact Strength (Charpy), -30°C	180	kJ/m ²	ISO 179/1eU
Notched Impact Strength (Charpy), +23°C	5	kJ/m ²	ISO 179/1eA
Notched Impact Strength (Charpy), -30°C	3	kJ/m ²	ISO 179/1eA
Flexural Modulus (23°C)	2400	MPa	ISO 178
Ball Indentation Hardness	130	MPa	ISO 2039-1

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

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

Ultradur® B 4520 FC Aqua
PBT

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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
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

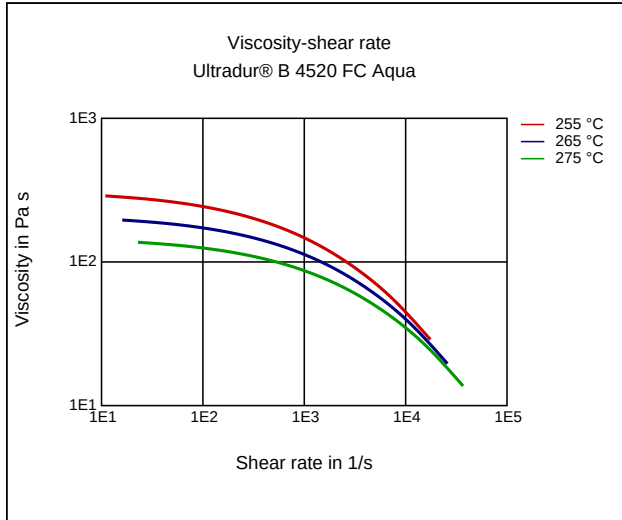
Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	80 - 120	°C	-
Pre-drying - Time	4	h	-
Processing humidity	≤0.04	%	-
Melt temperature	250 - 275	°C	-
Mold temperature	40 - 70	°C	-

Ultradur® B 4520 FC Aqua PBT

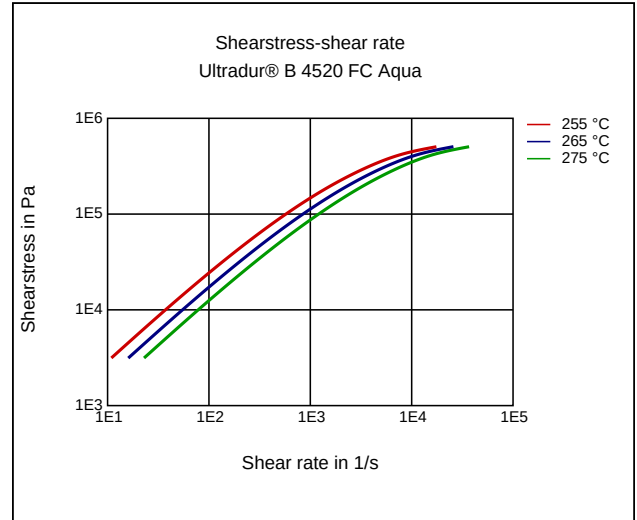
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Diagrams

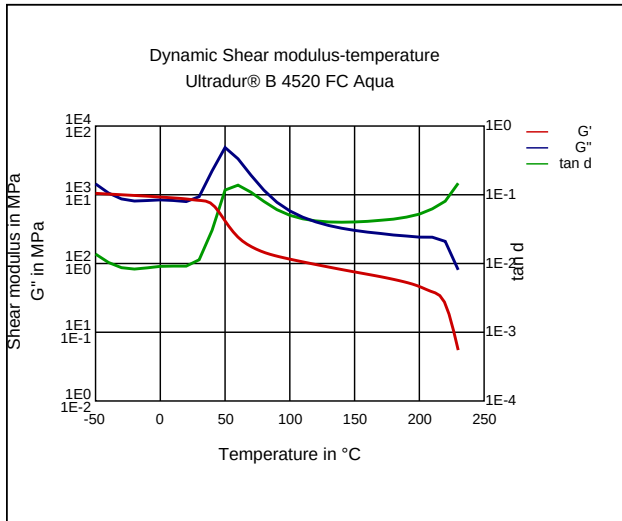
Viscosity-shear rate



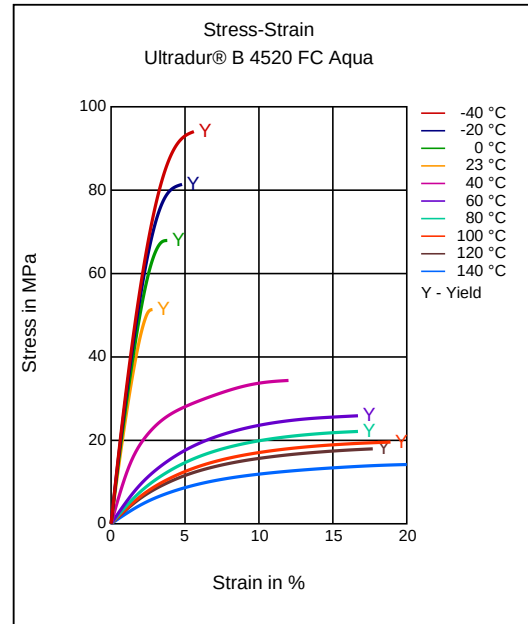
Shearstress-shear rate



Dynamic Shear modulus-temperature



Stress-strain

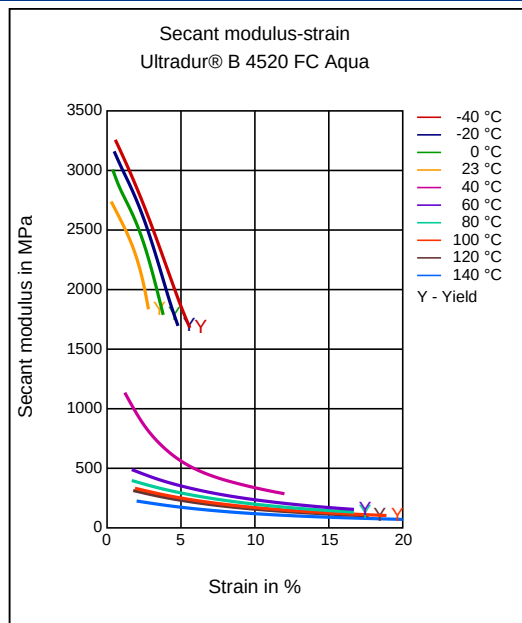


Ultradur® B 4520 FC Aqua

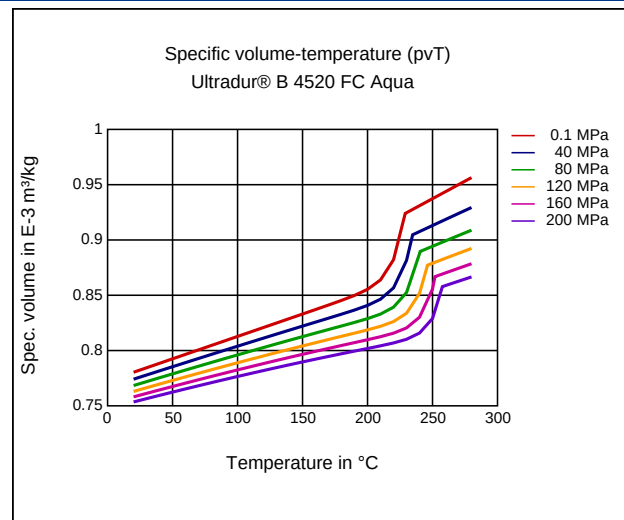
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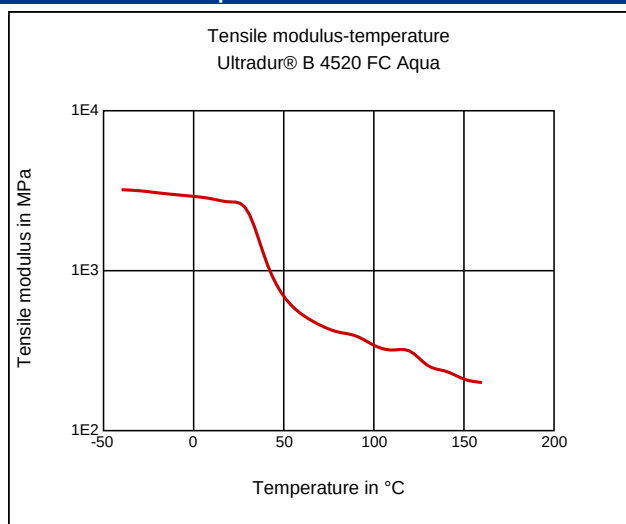
Secant modulus-strain



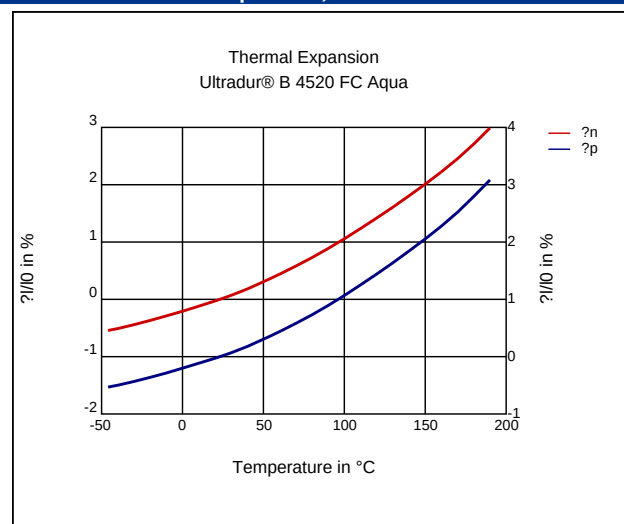
Specific volume-temperature (pvT)



Tensile Modulus-Temperature



Coeff. of linear thermal expansion, normal



Characteristics

Processing

Injection Molding, Other Extrusion

Delivery form

Pellets, Natural Color

Additives

Lubricants

Certifications

Food approval, Food approval 10/2011, Food Contact (FDA),
Water contact, Water contact KTW, Water contact DVGW W270,
NSF Approval

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)