

Ultradur® B 4500 FC

PBT

BASF

Medium viscous grade for compounding, injection molding and extrusion of flat films as well as thin-walled profiles and pipes in sensitive applications and with food contact.

The BASF Ultradur® FC (Food Contact) grades enable the industry to develop products for food contact applications which are in compliance with different food regulatory legislations, including regulation (EU) 10/2011, regulation (EC) 2023/2006 (GMP for materials in food contact) or FDA regulation 21 CFR. Additional food contact compliances may also be available. Please contact your local 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.

Abbreviated designation according to ISO 1043-1: PBT

Rheological properties	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	19	cm ³ /10min	ISO 1133
Temperature	250	°C	-
Load	2.16	kg	-
Molding shrinkage, parallel	1.6	%	ISO 294-4, 2577
Molding shrinkage, normal	1.9	%	ISO 294-4, 2577

Mechanical Properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	2500	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	290	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	4	kJ/m ²	ISO 179/1eA

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)	50	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	130	°C	ISO 75-1/-2
Coeff. of Linear Therm. Expansion, parallel	110	E-6/K	ISO 11359-1/-2
Coeff. of Linear Therm. Expansion, normal	110	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	3.3	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.3	-	IEC 62631-2-1
Dissipation Factor, 100Hz	10	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
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

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Humidity absorption	0.25	%	Sim. to ISO 62
Density	1300	kg/m³	ISO 1183

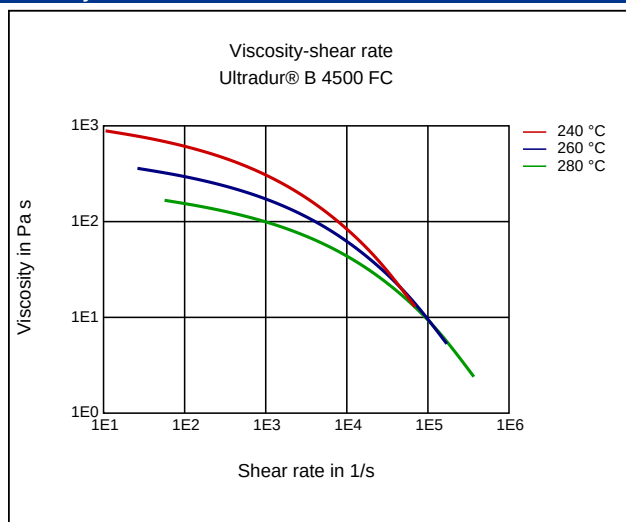
Material Specific Properties	Value	Unit	Test Standard
ISO Data			
Viscosity number	130	cm³/g	ISO 307, 1157, 1628

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

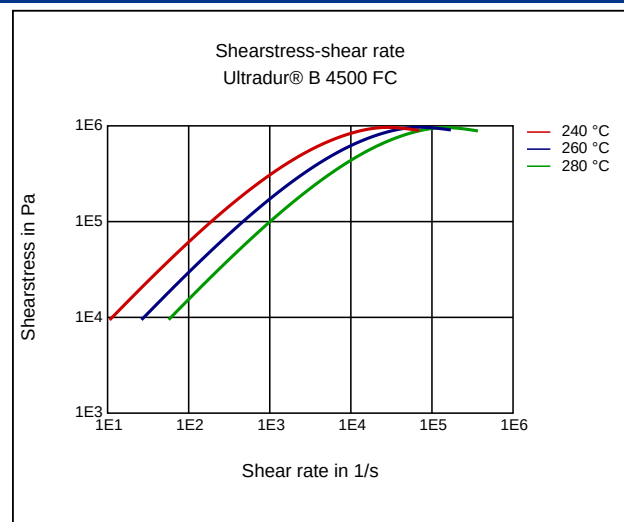
Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	80 - 120	°C	-
Pre-drying - Time	4	h	-
Processing humidity	≤0.04	%	-
Melt temperature	250 - 275	°C	-
Mold temperature	40 - 70	°C	-

Diagrams

Viscosity-shear rate



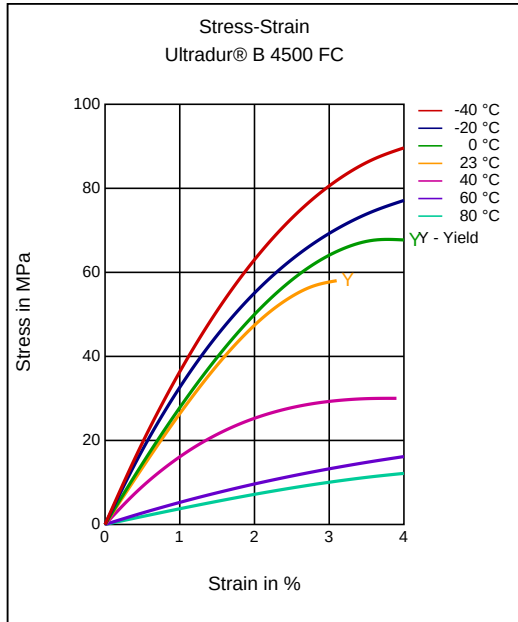
Shearstress-shear rate



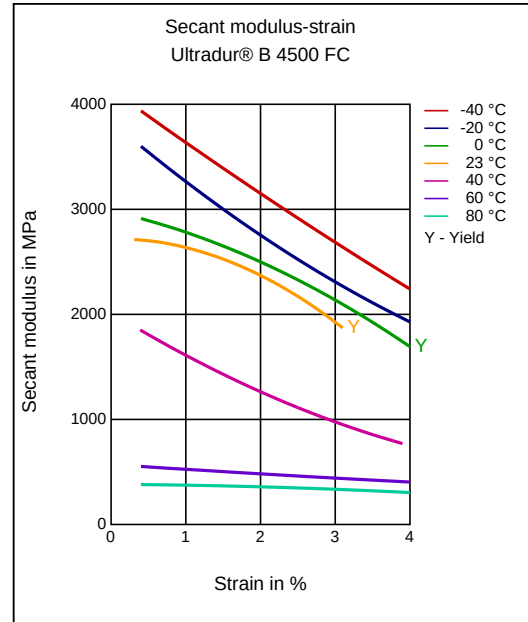
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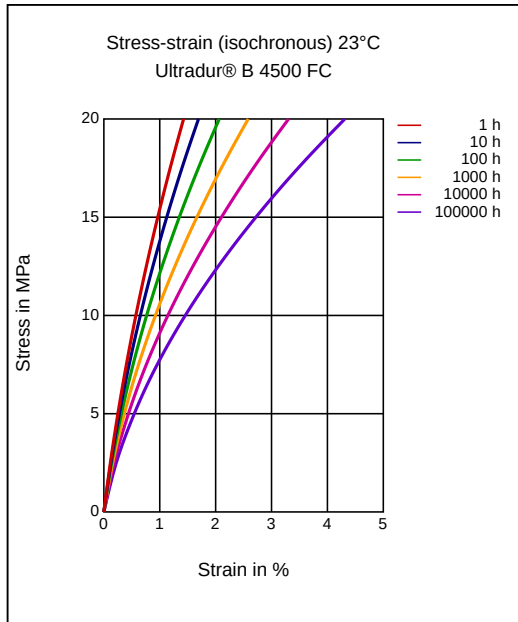
Stress-strain



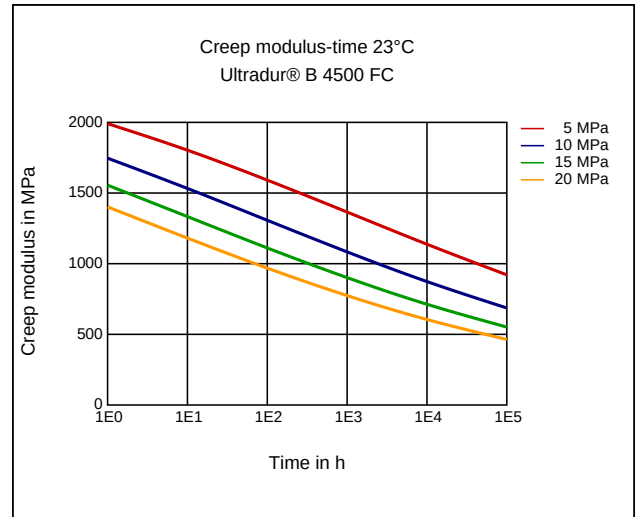
Secant modulus-strain



Stress-strain (isochronous) 23 °C



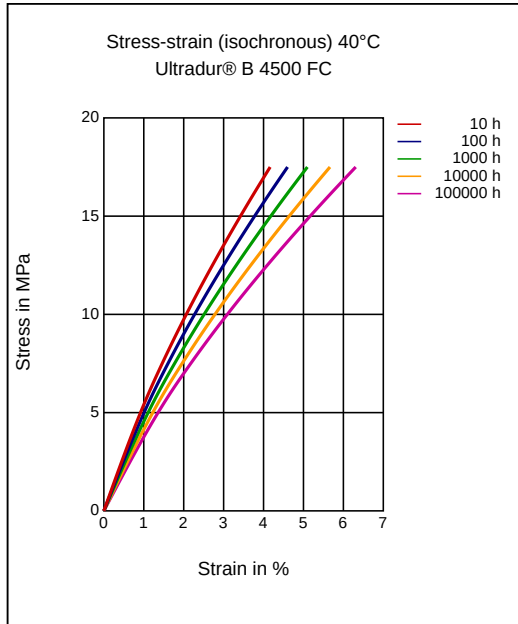
Creep modulus-time 23 °C



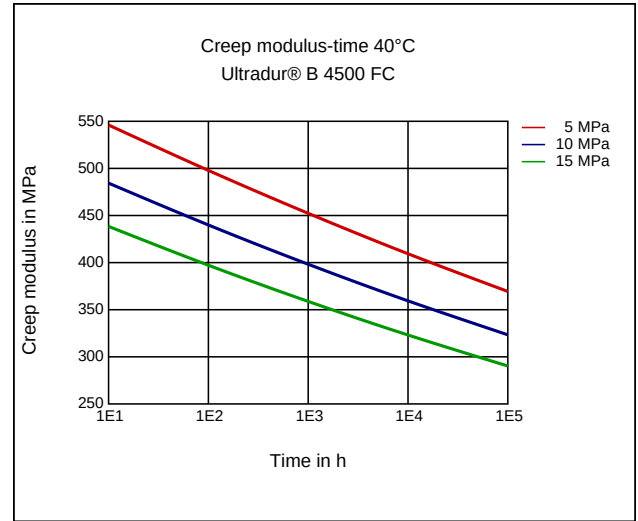
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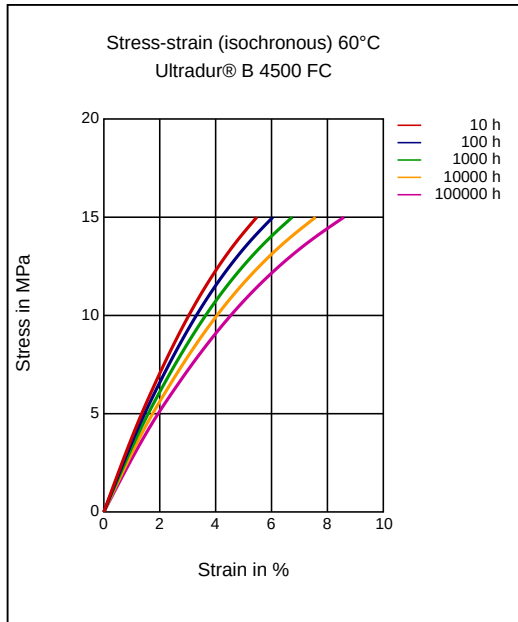
Stress-strain (isochronous) 40°C



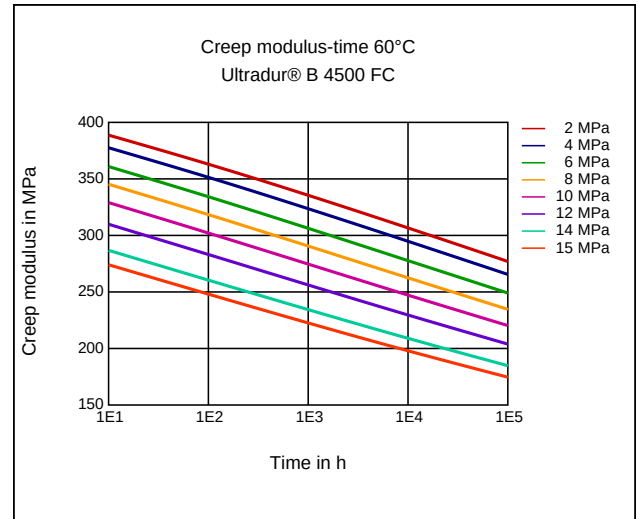
Creep modulus-time 40°C



Stress-strain (isochronous) 60°C



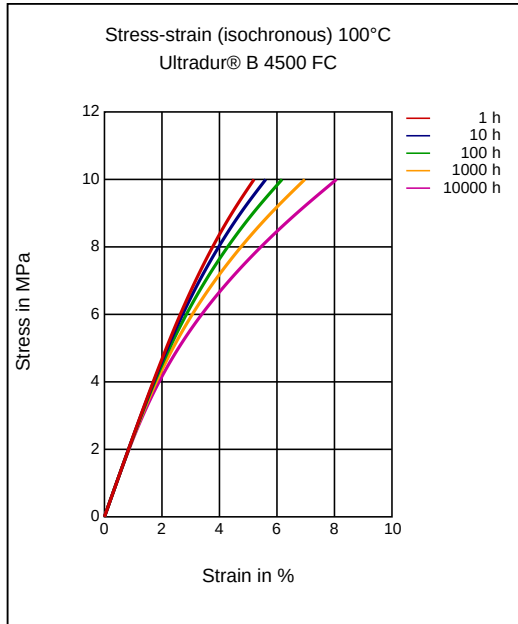
Creep modulus-time 60°C



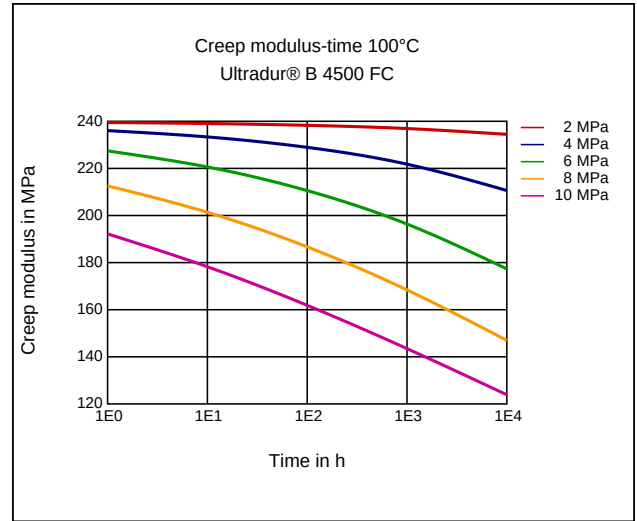
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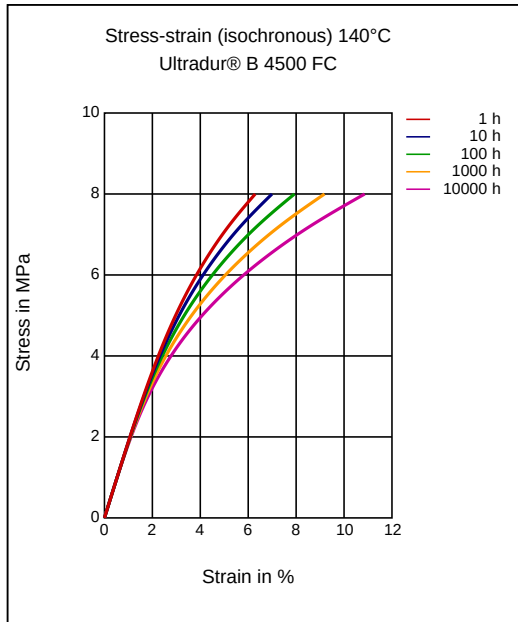
Stress-strain (isochronous) 100°C



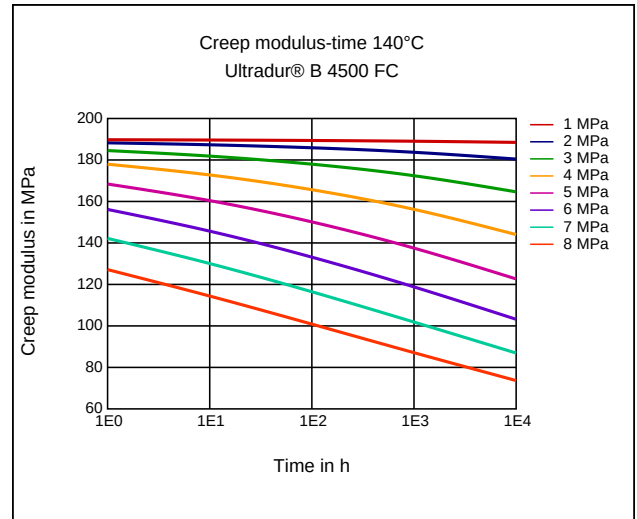
Creep modulus-time 100°C



Stress-strain (isochronous) 140°C



Creep modulus-time 140°C

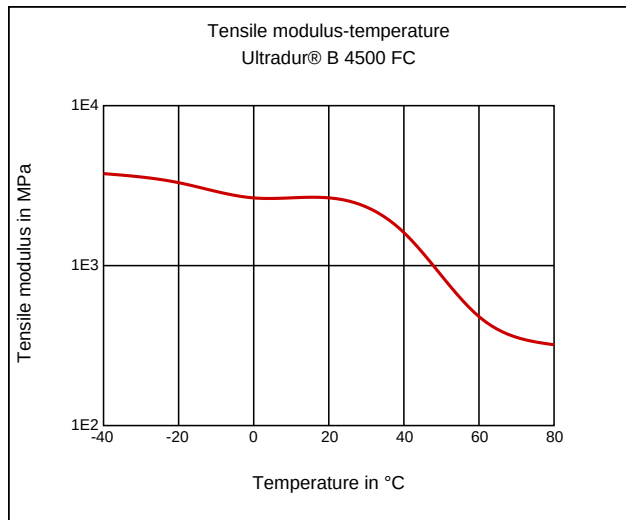


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Tensile Modulus-Temperature



Characteristics

Processing

Injection Molding, Film Extrusion, Profile Extrusion, Other Extrusion

Certifications

Food approval, Food approval 10/2011, Food Contact (FDA)

Delivery form

Pellets

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: 40 - 70 °C

injection molding, Mold temperature, recommended: 60 °C

Film Extrusion

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

Extrusion, Flat film, Melt temperature: 230 - 280 °C

Other Extrusion

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

Extrusion, Prepreg, Melt temperature: 230 - 250 °C

Extrusion, Pipes, Melt temperature: 230 - 260 °C

Profile extrusion

PREPROCESSING

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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

Extrusion, Profiles, Melt temperature: 230 - 260 °C

Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass) (23°C)