

Ultramid® A3WC4

PA66-CF20

BASF

Electrically conductive grade reinforced with 20 % carbon fibres. Used for machinery elements and housings with high stiffness and dimension stability, low density and favourable frictional behaviour (eg connecting rods).

Rheological properties	dry / cond	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	10 / *	cm³/10min	ISO 1133
Temperature	275 / *	°C	-
Load	5 / *	kg	-

Mechanical Properties	dry / cond	Unit	Test Standard
ISO Data			
Tensile Modulus	17000 / 12000	MPa	ISO 527
Stress at Break	230 / 160	MPa	ISO 527
Strain at Break	2.5 / 6	%	ISO 527
Tensile Creep Modulus, 1h	* / 8000	MPa	ISO 899-1
Tensile Creep Modulus, 1000h	* / 6800	MPa	ISO 899-1
Impact Strength (Charpy), +23°C	60 / 70	kJ/m²	ISO 179/1eU
Impact Strength (Charpy), -30°C	50 / -	kJ/m²	ISO 179/1eU
Notched Impact Strength (Charpy), +23°C	11 / 16	kJ/m²	ISO 179/1eA
Notched Impact Strength (Charpy), -30°C	7.5 / -	kJ/m²	ISO 179/1eA

Thermal Properties	dry / cond	Unit	Test Standard
ISO Data			
Melting Temperature (10°C/min)	260 / *	°C	ISO 11357-1/-3
Temp. of deflection under load (1.80 MPa)	245 / *	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	250 / *	°C	ISO 75-1/-2
Coeff. of Linear Therm. Expansion, parallel	9 / *	E-6/K	ISO 11359-1/-2
Coeff. of Linear Therm. Expansion, normal	86 / *	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm Nom. Thickn.	HB / *	class	UL 94
Thickness tested	1.6 / *	mm	-
UL recognition	yes / *	-	-
Burning Behav. at thickness h	HB / *	class	UL 94
Thickness tested	0.8 / *	mm	-
UL recognition	yes / *	-	-

Electrical Properties	dry / cond	Unit	Test Standard
ISO Data			
Volume Resistivity	0.0155 / 0.014	Ohm*m	IEC 62631-3-1
Surface Resistivity	* / 4600	Ohm	IEC 62631-3-2
Electric Strength	5 / 5	kV/mm	IEC 60243-1
Comparative tracking index	- / 100	-	IEC 60112

Other Properties	dry / cond	Unit	Test Standard
ISO Data			
Water Absorption	6.5 / *	%	Sim. to ISO 62
Humidity absorption	2 / *	%	Sim. to ISO 62
Density	1220 / -	kg/m³	ISO 1183

Material Specific Properties	dry / cond	Unit	Test Standard
ISO Data			
Viscosity number	150 / *	cm³/g	ISO 307, 1157, 1628

Test specimen production	Value	Unit	Test Standard
ISO Data			
Injection Molding, melt temperature	290	°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	°C	-

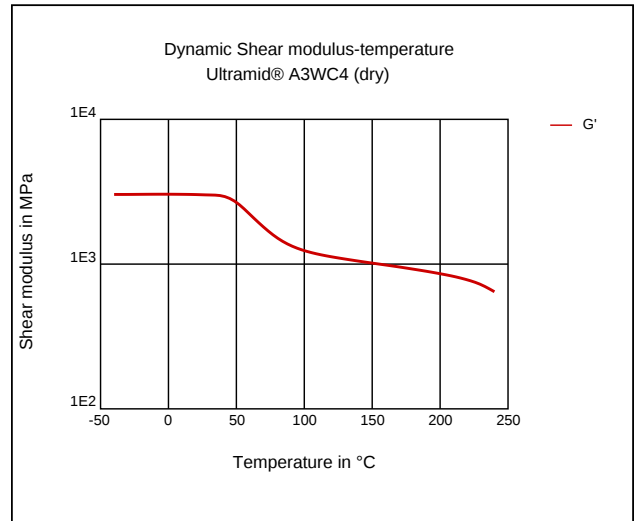
Ultramid® A3WC4
PA66-CF20

BASF

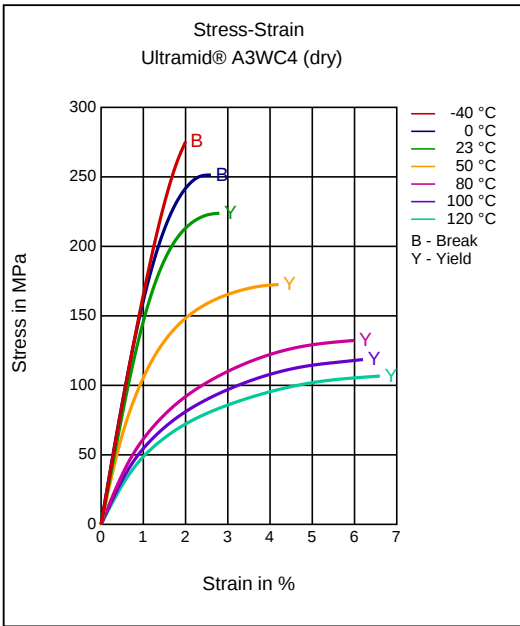
Pre-drying - Time	4	h	-
Processing humidity	≤0.15	%	-
Melt temperature	280 - 300	°C	-
Mold temperature	80 - 90	°C	-

Diagrams

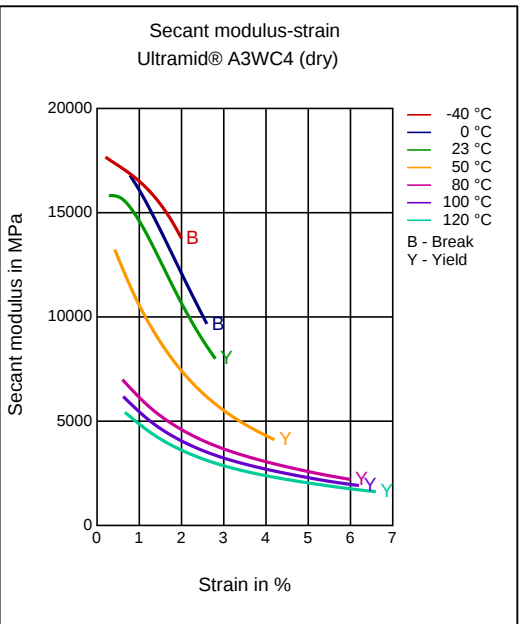
Dynamic Shear modulus-temperature



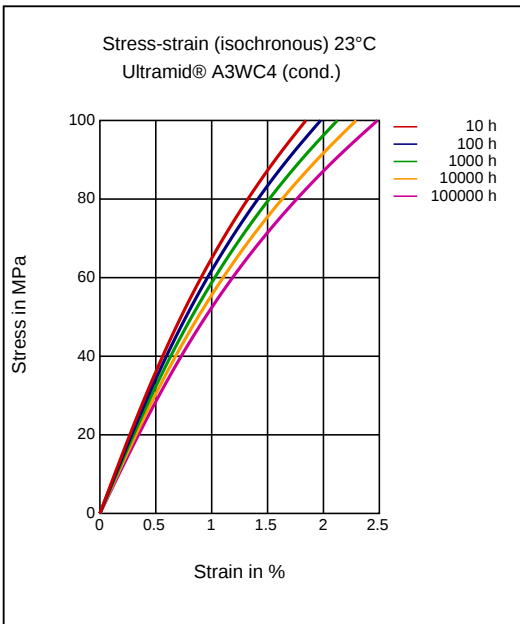
Stress-strain



Secant modulus-strain



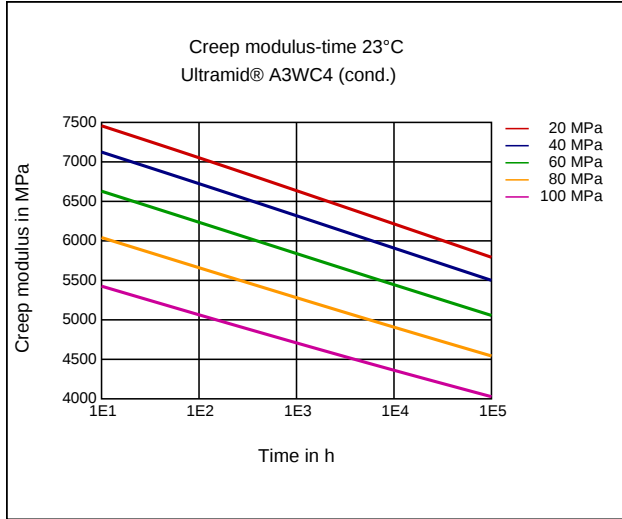
Stress-strain (isochronous) 23 °C



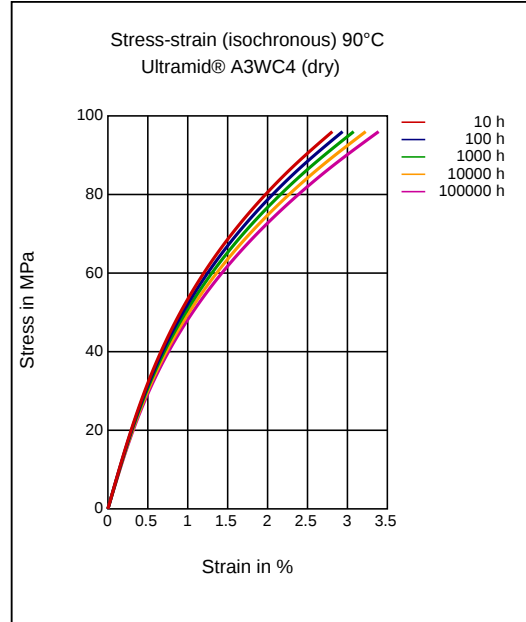
Ultramid® A3WC4
PA66-CF20

BASF

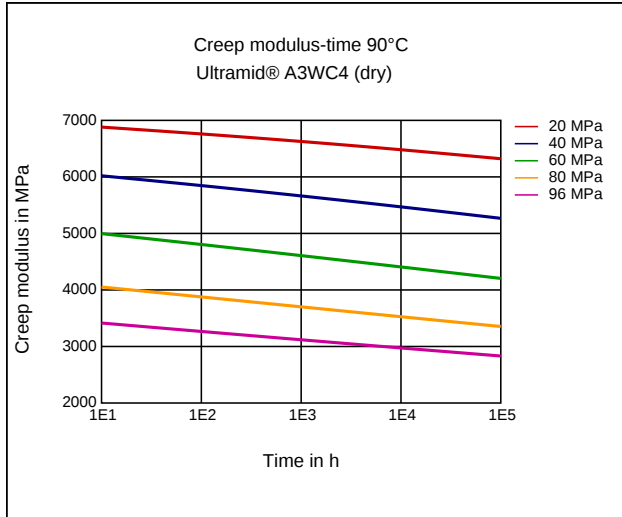
Creep modulus-time 23°C



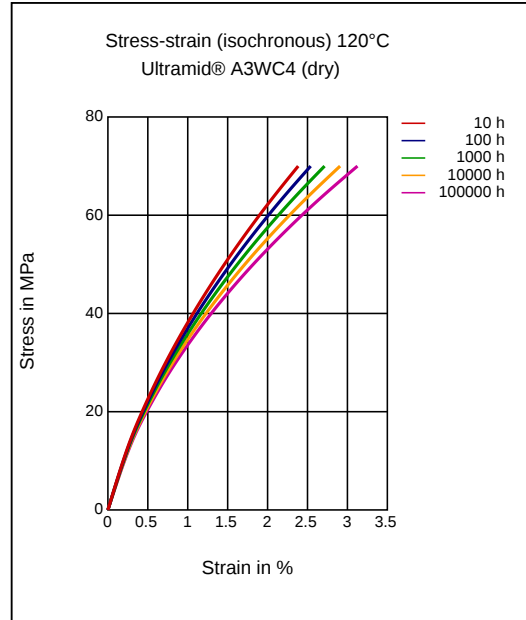
Stress-strain (isochronous) 90°C



Creep modulus-time 90°C



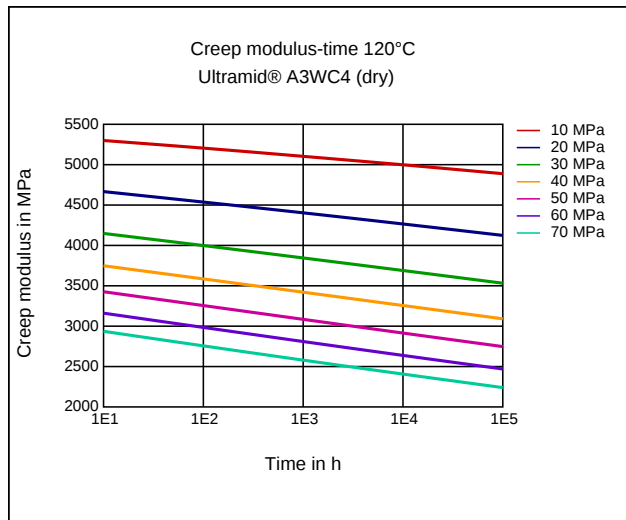
Stress-strain (isochronous) 120°C



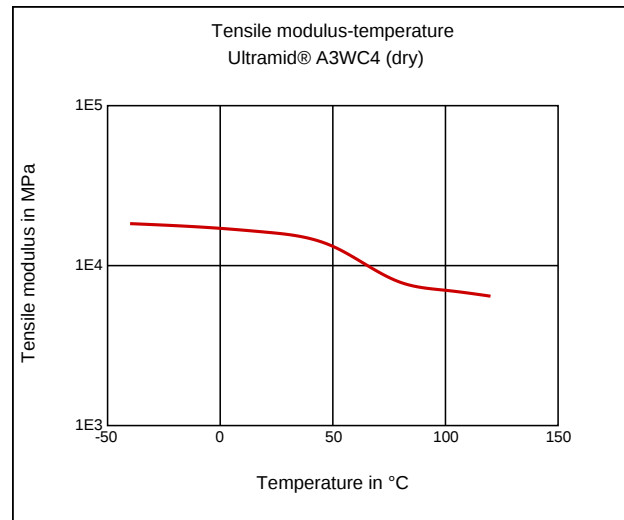
Ultramid® A3WC4 PA66-CF20

BASF

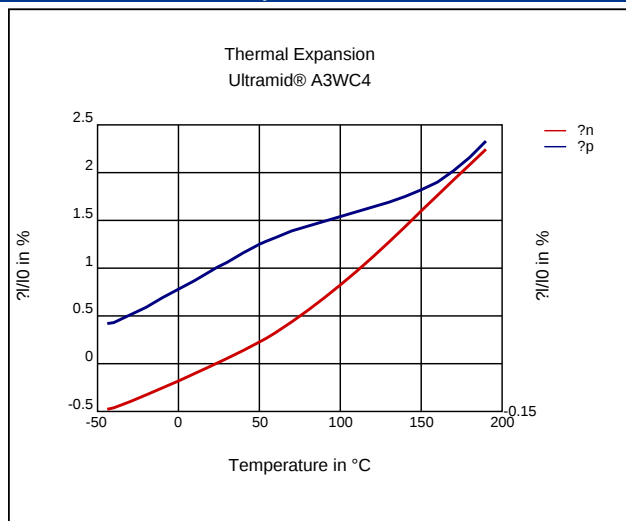
Creep modulus-time 120 °C



Tensile Modulus-Temperature



Coeff. of linear thermal expansion, normal



Characteristics

Processing

Injection Molding

Delivery form

Pellets

Additives

Lubricants, Release agent

Special Characteristics

Electrically Conductive, Heat aging stabilized

Injection Molding

PREPROCESSING

Pre/Post-processing, max. allowed water content: .15 %

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

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

PROCESSING

injection molding, Melt temperature, range: 280 - 300 °C

injection molding, Melt temperature, recommended: 290 °C

injection molding, Mold temperature, range: 80 - 90 °C

injection molding, Mold temperature, recommended: 80 °C

Ultramid® A3WC4
PA66-CF20

BASF

injection molding, Dwell time, thermoplastics: 10 min

Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass) (23°C)