

Ultramid® A3K FC Aqua UN
PA66

BASF

Ultramid® A3K FC Aqua UN is optimized for plastic parts, mandatory requiring material approvals for drinking water or direct food contact.

The product is approved according to

- 21 CFR FDA § 177.1500 "Nylon resins" (except contact with alcoholic beverages)
- European Food Contact European Food Contact Commission Regulation (EU) 10/2011
- GMP (EC) n°2023/2006

and provides the approvals for drinking water regulations of

- KTW
- DVGW W270
- WRAS
- 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).

Rheological properties	dry / cond	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	115 / *	cm³/10min	ISO 1133
Temperature	275 / *	°C	-
Load	5 / *	kg	-
Molding shrinkage, parallel	1.6 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.8 / *	%	ISO 294-4, 2577

Mechanical Properties	dry / cond	Unit	Test Standard
ISO Data			
Tensile Modulus	3100 / 1100	MPa	ISO 527
Yield stress	85 / 50	MPa	ISO 527
Yield strain	5 / 20	%	ISO 527
Nominal strain at break	30 / >50	%	ISO 527
Tensile Creep Modulus, 1h	* / 1100	MPa	ISO 899-1
Tensile Creep Modulus, 1000h	* / 700	MPa	ISO 899-1
Impact Strength (Charpy), +23°C	no break / no break	kJ/m²	ISO 179/1eU
Impact Strength (Charpy), -30°C	no break / -	kJ/m²	ISO 179/1eU
Notched Impact Strength (Charpy), +23°C	5 / 20	kJ/m²	ISO 179/1eA
Notched Impact Strength (Charpy), -30°C	4 / -	kJ/m²	ISO 179/1eA
Flexural Modulus (23°C)	2900 / -	MPa	ISO 178
Notched Impact Strength (Izod), 23°C	5.5 / no break	kJ/m²	ISO 180/1A
Notched Impact Strength (Izod)	6 / -	kJ/m²	ISO 180/1A
Temperature	-30	°C	-

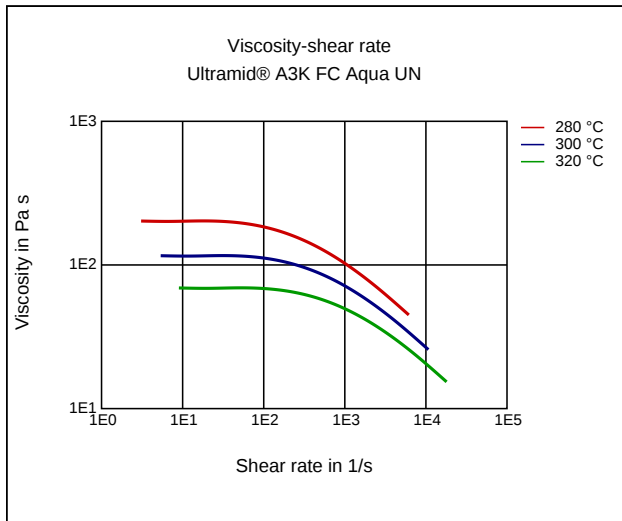
Thermal Properties	dry / cond	Unit	Test Standard
ISO Data			
Melting Temperature (10°C/min)	260 / *	°C	ISO 11357-1/-3
Glass Transition Temperature (10°C/min)	72 / *	°C	ISO 11357-1/-2
Temp. of deflection under load (1.80 MPa)	75 / *	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	220 / *	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	250 / *	°C	ISO 306
Coeff. of Linear Therm. Expansion, parallel	98 / *	E-6/K	ISO 11359-1/-2
Oxygen index	28 / *	%	ISO 4589-1/-2

Electrical Properties	dry / cond	Unit	Test Standard
ISO Data			
Relative permittivity, 100Hz	3.8 / -	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.2 / 5	-	IEC 62631-2-1
Dissipation Factor, 100Hz	50 / -	E-4	IEC 62631-2-1
Dissipation Factor, 1MHz	250 / 2000	E-4	IEC 62631-2-1
Volume Resistivity	1E13 / 1E10	Ohm*m	IEC 62631-3-1
Surface Resistivity	* / 1E10	Ohm	IEC 62631-3-2
Comparative tracking index	- / 600	-	IEC 60112

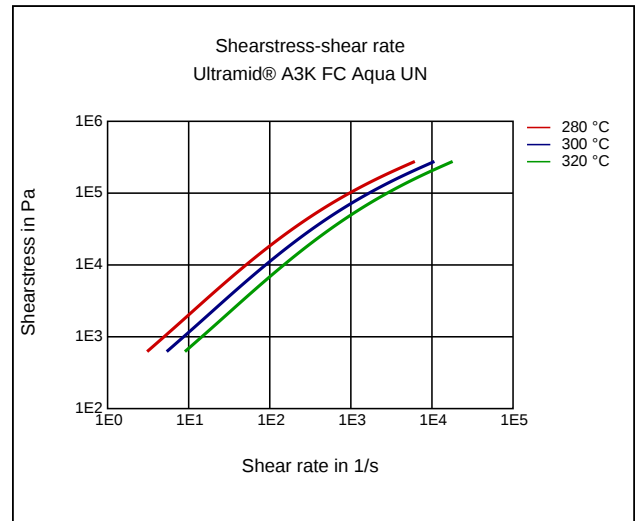
Other Properties	dry / cond	Unit	Test Standard
ISO Data			
Water Absorption	8.5 / *	%	Sim. to ISO 62
Humidity absorption	2.8 / *	%	Sim. to ISO 62
Density	1130 / -	kg/m ³	ISO 1183
Bulk density	700	kg/m ³	-
Material Specific Properties			
ISO Data			
Viscosity number	150 / *	cm ³ /g	ISO 307, 1157, 1628
Rheological calculation properties			
ISO Data			
Ejection temperature	180	°C	-
Test specimen production			
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			
Pre-drying - Temperature	80	°C	-
Pre-drying - Time	4	h	-
Processing humidity	≤0.15	%	-
Melt temperature	280 - 300	°C	-
Mold temperature	60 - 80	°C	-

Diagrams

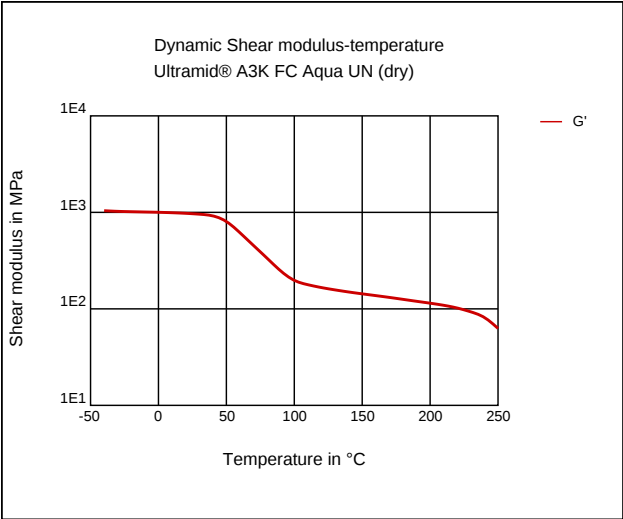
Viscosity-shear rate



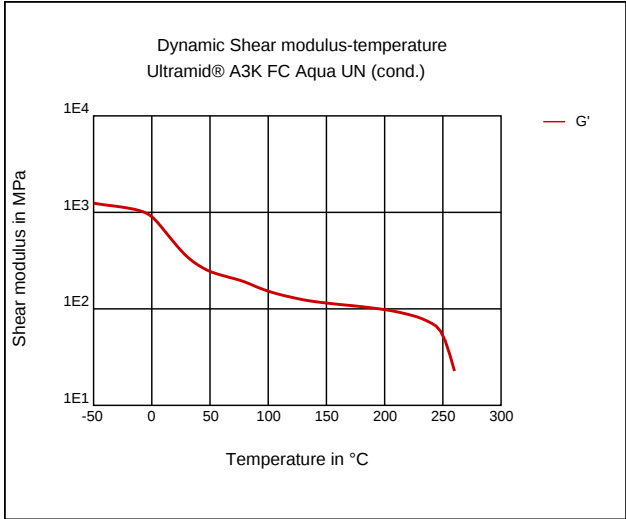
Shearstress-shear rate



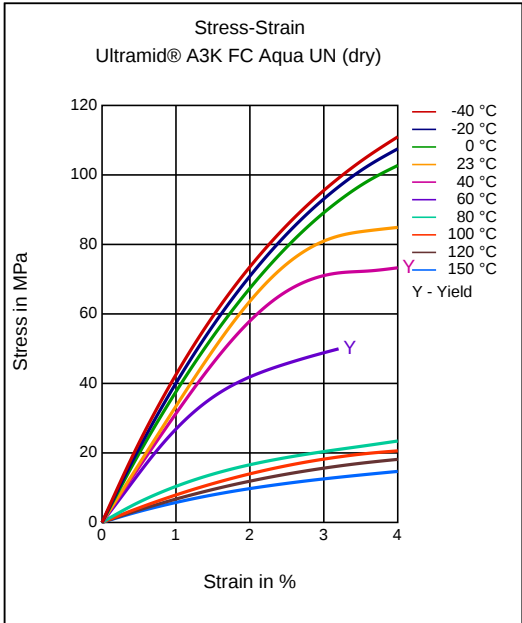
Dynamic Shear modulus-temperature



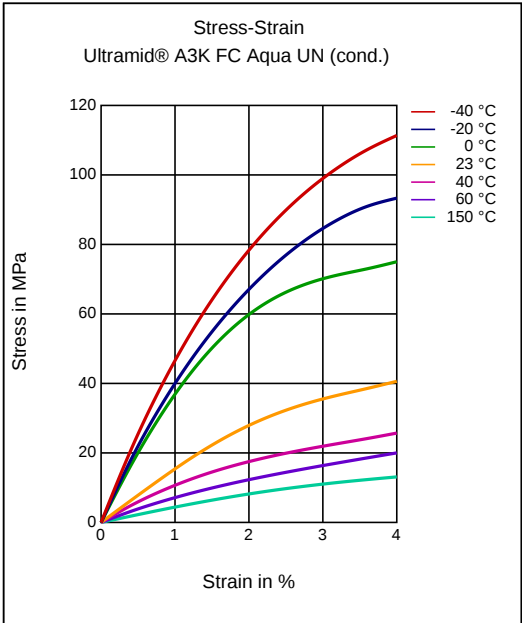
Dynamic Shear modulus-temperature



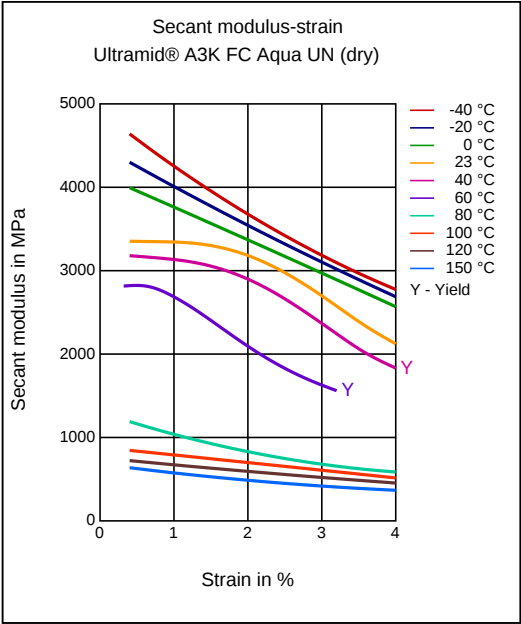
Stress-strain



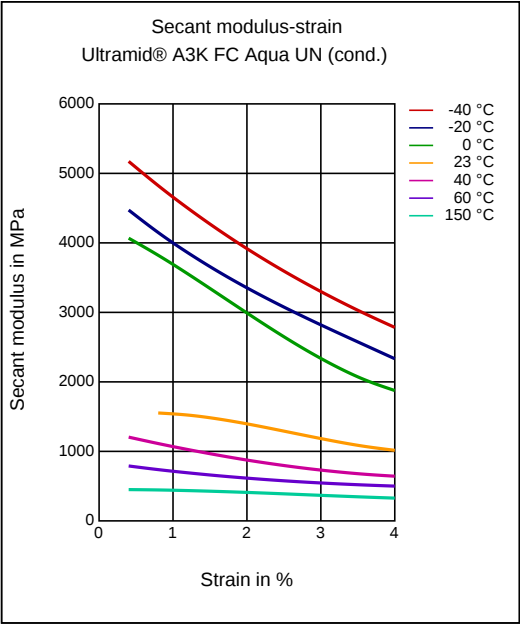
Stress-strain



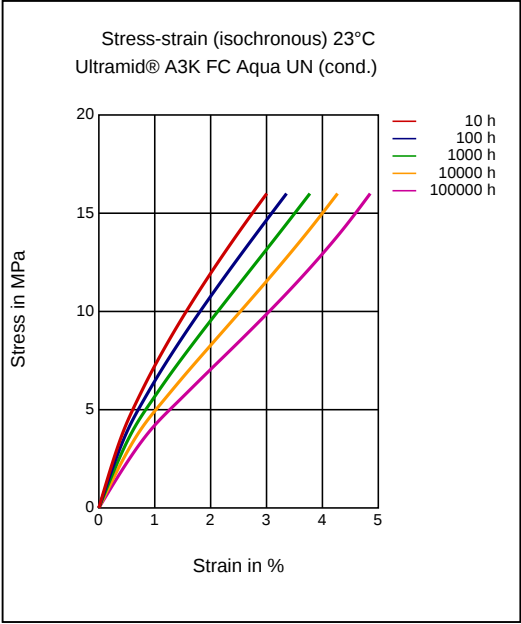
Secant modulus-strain



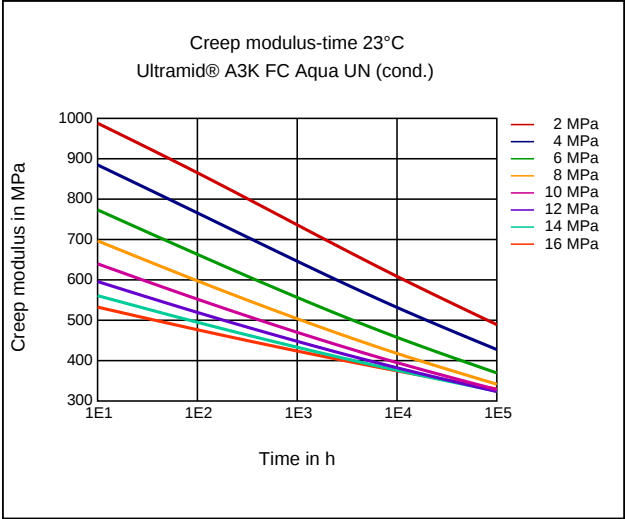
Secant modulus-strain



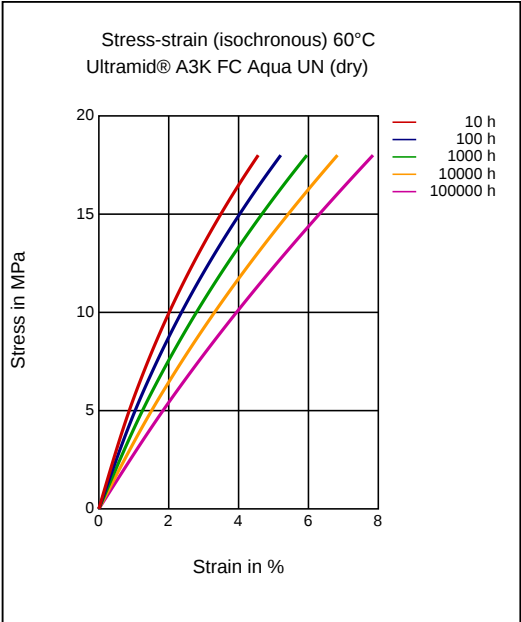
Stress-strain (isochronous) 23 °C



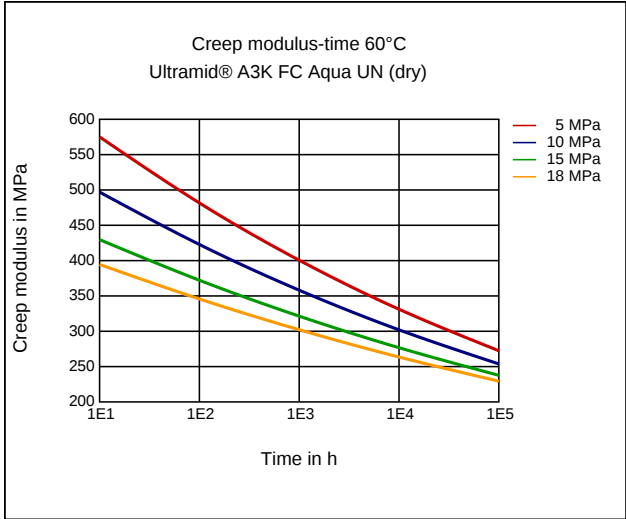
Creep modulus-time 23 °C



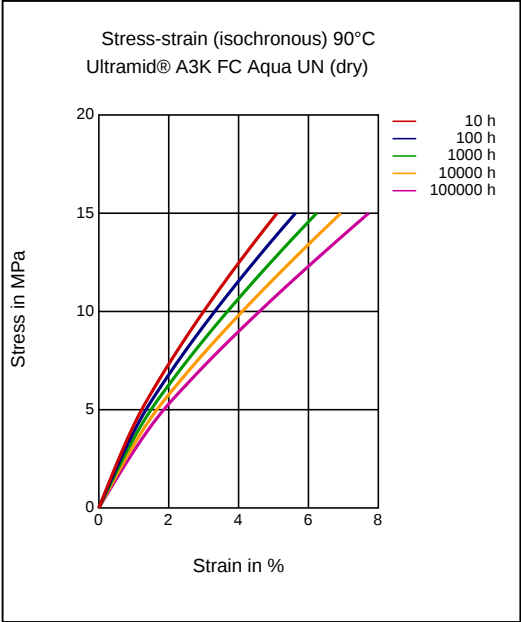
Stress-strain (isochronous) 60 °C



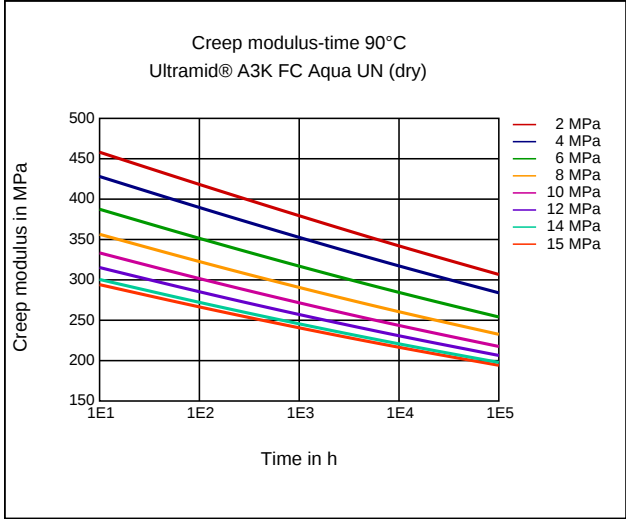
Creep modulus-time 60 °C



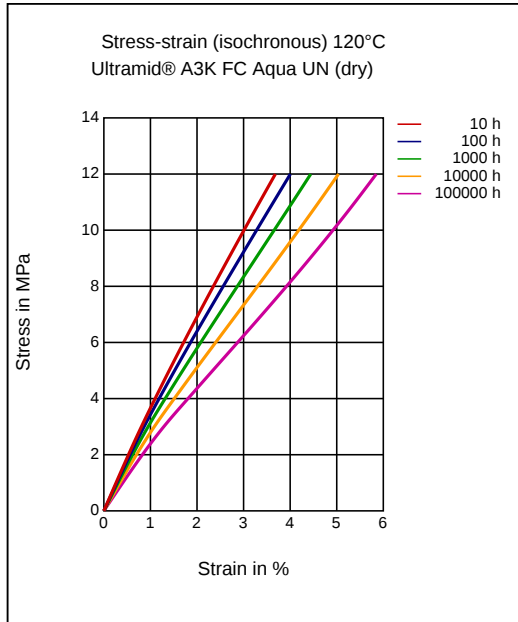
Stress-strain (isochronous) 90 °C



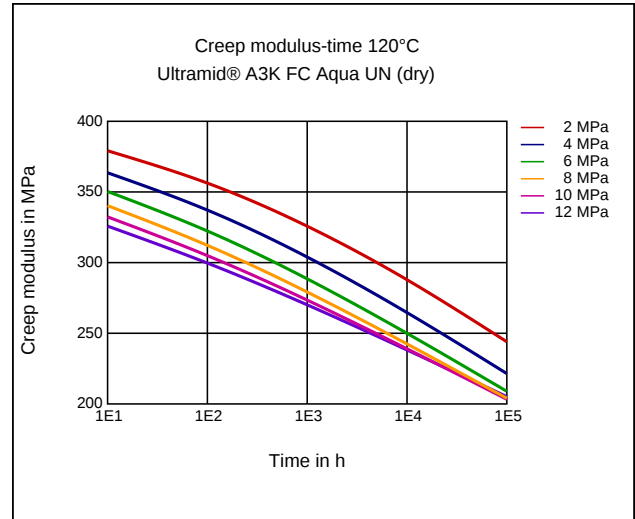
Creep modulus-time 90 °C



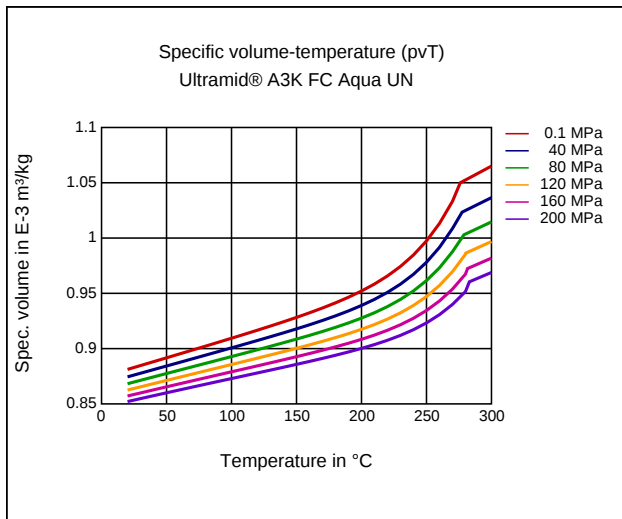
Stress-strain (isochronous) 120 °C



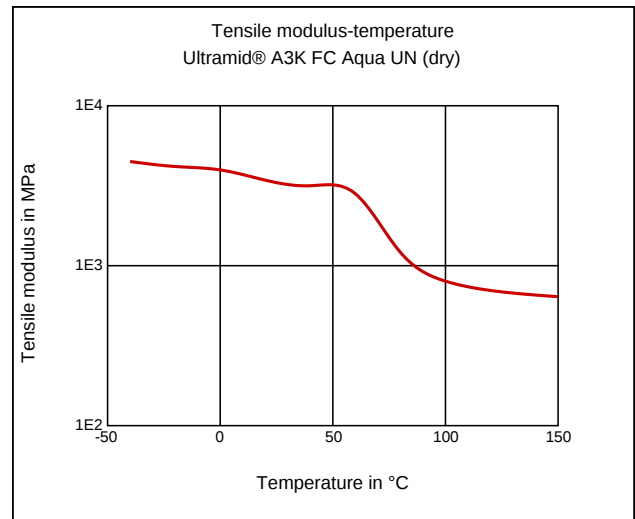
Creep modulus-time 120 °C



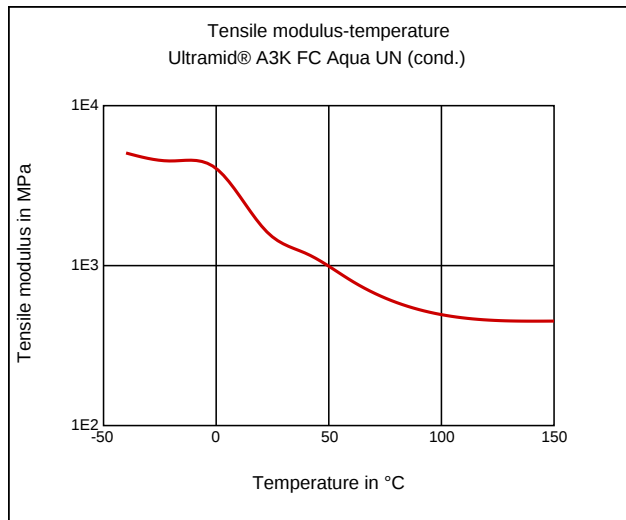
Specific volume-temperature (pvT)



Tensile Modulus-Temperature



Tensile Modulus-Temperature



Characteristics

Processing

Injection Molding, Other Extrusion

Delivery form

Pellets, Natural Color

Additives

Lubricants, Release agent

Special Characteristics

Heat aging stabilized

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: .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: 60 - 80 °C

injection molding, Mold temperature, recommended: 60 °C

injection molding, Dwell time, thermoplastics: 10 min

Chemical Media Resistance

Acids

✓ Acetic Acid (5% by mass) (23°C)

Disclaimer

Liability Exclusion

These guide values are measured and provided by the product manufacturer and have been determined on standardised test specimens and can be affected by pigmentation, mould design and processing conditions. M-Base has taken the guide values from the producer's original Technical Data Sheet. **ALBIS AND M-BASE ARE THEREFORE NOT RESPONSIBLE FOR THE ACCURACY OF THE GUIDE VALUES AND CANNOT GIVE ANY WARRANTY WITH REGARD TO THEIR CORRECTNESS.**

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