Ultramid® Advanced N4HG7 LS BK

PPA-GF35 BASF

Partially aromatic, glassfiber reinforced polyphthalamide for injection molding with strong mechanical properties especially at elevated temperatures, good long-term thermal stability and outstanding chemical resistance for highly stressed parts.
Ultramid® Advanced N4HG7 LS BK 23593 can be characterized as compound with high toughness, stiffness, extremely low water absorption and outstanding dimensional stability. It is based on a high molecular weight polymer, and features exceptional resistance against many challenging media such as automotive coolant fluids. Ultramid® Advanced N4HG7 LS BK 23593 is easily processable with excellent melt stability.

Markets & applications
Automotive: Fuel system, cooling system, powertrain, Auto E&E, sensors, pumps, fuel cell
E&E: Connectors
Consumer goods: Home appliances, consumer electronics

Rheological properties	dry / cond	Unit	Test Standard
ISO Data			
Molding shrinkage, parallel	0.5 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	0.9 / *	%	ISO 294-4, 2577

Mechanical Properties	dry / cond	Unit	Test Standard
ISO Data			
Tensile Modulus	11500 / 11500	MPa	ISO 527
Stress at Break	210 / 190	MPa	ISO 527
Strain at Break	2.5 / 2.3	%	ISO 527
Impact Strength (Charpy), +23°C	90 / 70	kJ/m²	ISO 179/1eU
Impact Strength (Charpy), -30°C	80 / -	kJ/m²	ISO 179/1eU
Notched Impact Strength (Charpy), +23°C	10 / 8	kJ/m²	ISO 179/1eA
Notched Impact Strength (Charpy), -30°C	9 / -	kJ/m²	ISO 179/1eA

Thermal Properties	dry / cond	Unit	Test Standard
ISO Data			
Melting Temperature (10°C/min)	300 / *	°C	ISO 11357-1/-3
Glass Transition Temperature (10°C/min)	120 / *	°C	ISO 11357-1/-2
Temp. of deflection under load (1.80 MPa)	270 / *	°C	ISO 75-1/-2
Coeff. of Linear Therm. Expansion, parallel	17.5 / *	E-6/K	ISO 11359-1/-2
Coeff. of Linear Therm. Expansion, normal	56.5 / *	E-6/K	ISO 11359-1/-2
Burning Behav. at thickness h	HB / *	class	UL 94
Thickness tested	0.8 / *	mm	-

Electrical Properties	dry / cond	Unit	Test Standard
ISO Data			
Relative permittivity, 100Hz	3.8 / 3.8	-	IEC 62631-2-1
Dissipation Factor, 1MHz	130 / 195	E-4	IEC 62631-2-1
Comparative tracking index	600 / -	-	IEC 60112

Other Properties	dry / cond	Unit	Test Standard
ISO Data			
Water Absorption	1.9 / *	%	Sim. to ISO 62
Humidity absorption	0.8 / *	%	Sim. to ISO 62
Density	1420 / -	kg/m³	ISO 1183

Material Specific Properties	dry / cond	Unit	Test Standard
ISO Data			
Viscosity number	120 / *	cm³/g	ISO 307, 1157, 1628

Test specimen production	Value	Unit	Test Standard
ISO Data			
Injection Molding, melt temperature	330	°C	ISO 294
Injection Molding, mold temperature	140	°C	ISO 294

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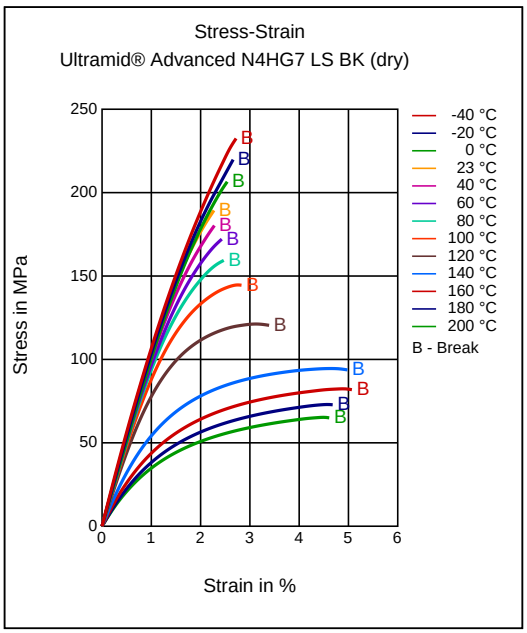
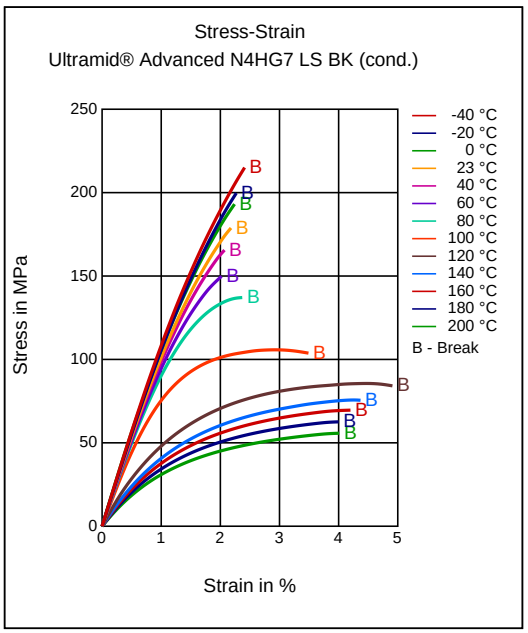
Diagrams

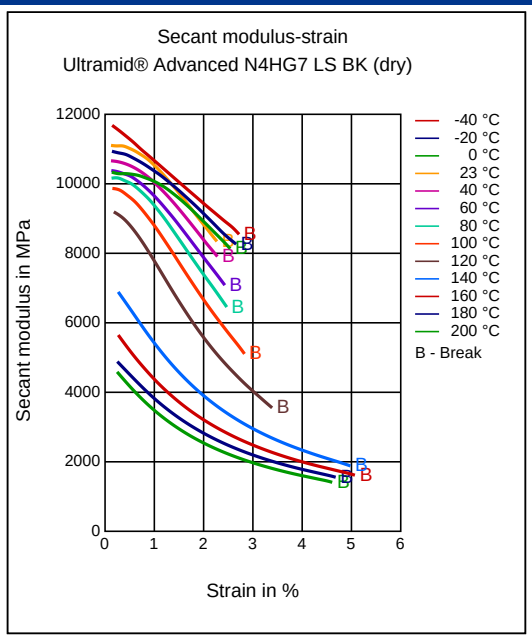
Stress-strain



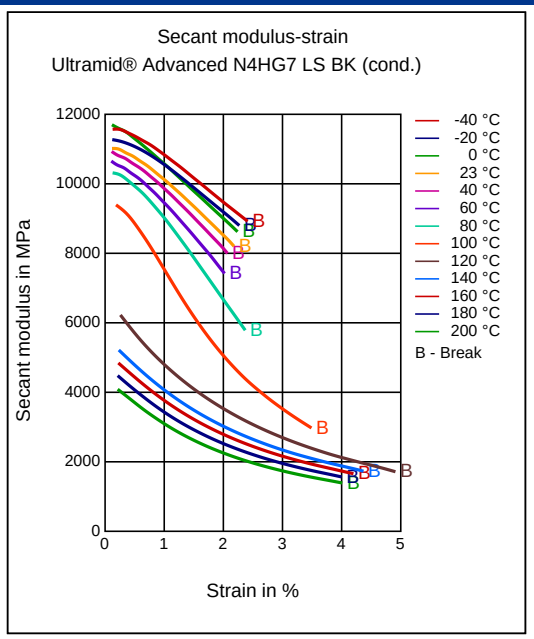
Stress-strain



Secant modulus-strain



Secant modulus-strain



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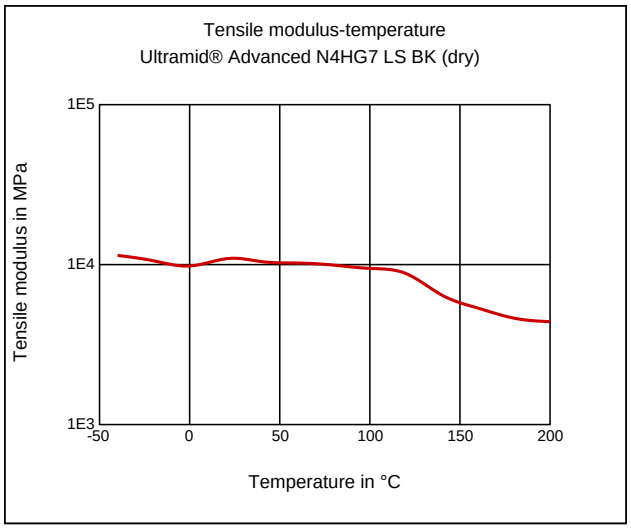
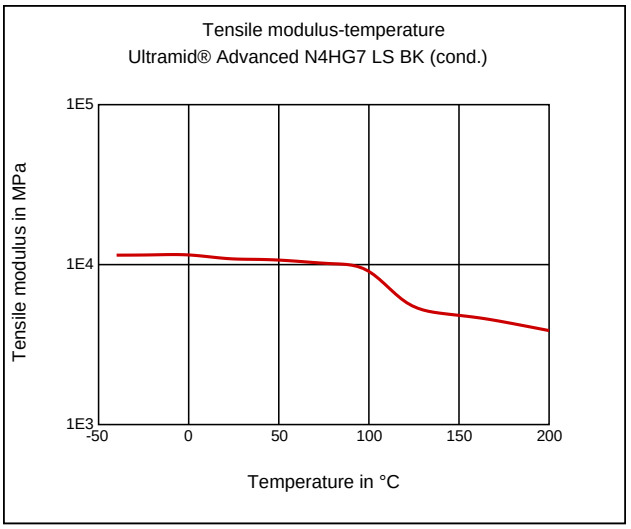
Tensile Modulus-Temperature



Tensile Modulus-Temperature



Characteristics

Processing
Injection Molding

Features
Melt Strength, Thermal Stability

Delivery form
Pellets, Black

Chemical Resistance
General Chemical Resistance

Special Characteristics
Heat aging stabilized

Applications
Automotive, Electrical and Electronical

Injection Molding

PREPROCESSING
Pre/Post-processing, max. allowed water content: .05 %
Pre/Post-processing, Pre-drying, Temperature: 120 °C
Pre/Post-processing, Pre-drying, Time: 8 h

PROCESSING
injection molding, Melt temperature, range: 320 - 340 °C
injection molding, Melt temperature, recommended: 330 °C
injection molding, Mold temperature, range: 125 - 170 °C
injection molding, Mold temperature, recommended: 140 °C
injection molding, Dwell time, thermoplastics: 5 min