

Ultramid® Advanced N4H UN

PPA

BASF

Partially aromatic polyphthalamide for injection molding and extrusion with strong mechanical properties especially at elevated temperatures, good long-term thermal stability and excellent chemical resistance for highly stressed parts. The product can be characterized as polymer with high toughness, extremely low water absorption, outstanding dimensional stability and very good wear/sliding friction properties. It features a high melting point (300°C) and excellent melt stability.

Markets & applications

Automotive: Gear wheels, valves, powertrain, extrusion applications, tribo applications

Industry goods: Tribo applications, extruded lines

Consumer goods: Home appliances, rollers, consumer electronics

Rheological properties	dry / cond	Unit	Test Standard
ISO Data			
Molding shrinkage, parallel	1.7 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.8 / *	%	ISO 294-4, 2577

Mechanical Properties	dry / cond	Unit	Test Standard
ISO Data			
Tensile Modulus	2600 / 2600	MPa	ISO 527
Yield stress	90 / 90	MPa	ISO 527
Yield strain	5 / 5	%	ISO 527
Impact Strength (Charpy), +23°C	no break / -	kJ/m²	ISO 179/1eU
Impact Strength (Charpy), -30°C	130 / -	kJ/m²	ISO 179/1eU
Notched Impact Strength (Charpy), +23°C	6 / -	kJ/m²	ISO 179/1eA
Notched Impact Strength (Charpy), -30°C	8 / -	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
Temp. of deflection under load (1.80 MPa)	130 / *	°C	ISO 75-1/-2
Temp. of deflection under load (0.45 MPa)	234 / *	°C	ISO 75-1/-2
Coeff. of Linear Therm. Expansion, parallel	67 / *	E-6/K	ISO 11359-1/-2
Coeff. of Linear Therm. Expansion, normal	68 / *	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, 1MHz	3.3 / 3.3	-	IEC 62631-2-1
Dissipation Factor, 1MHz	165 / 260	E-4	IEC 62631-2-1
Comparative tracking index	- / 600	-	IEC 60112

Other Properties	dry / cond	Unit	Test Standard
ISO Data			
Water Absorption	2.5 / *	%	Sim. to ISO 62
Humidity absorption	1.3 / *	%	Sim. to ISO 62
Density	1130 / -	kg/m³	ISO 1183

Material Specific Properties	dry / cond	Unit	Test Standard
ISO Data			
Viscosity number	125 / *	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

Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	120	°C	-
Pre-drying - Time	8	h	-
Processing humidity	≤0.05	%	-

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Melt temperature	320 - 340	°C	-
Mold temperature	100 - 160	°C	-

Characteristics

Processing

Injection Molding, Profile Extrusion

Delivery form

Pellets, Natural Color

Special Characteristics

Heat aging stabilized

Features

Melt Strength, Thermal Stability, Tribologic Grade

Chemical Resistance

General Chemical Resistance

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 - 160 °C

injection molding, Mold temperature, recommended: 140 °C

injection molding, Dwell time, thermoplastics: 5 min