

Ultramid® Advanced N4U41 LS BK

PPA FR(40)

BASF

Partially aromatic polyphthalamide for injection molding and extrusion with strong mechanical properties especially at elevated temperatures and excellent chemical resistance for highly stressed parts, electrical insulating parts and cable ducts. The flame retardant is without halogens and can be characterized as polymer with extremely low water absorption and outstanding dimensional stability. It features a high melting point (300°C) and excellent melt stability.

Markets & applications

Automotive: Automotive electrics & electronics (E&E), sensors
E&E: Connectors, SMT (surface mount technology) applications
Consumer goods: Consumer electronics

Rheological properties	dry / cond	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	50 / *	cm³/10min	ISO 1133
Temperature	325 / *	°C	-
Load	5 / *	kg	-
Molding shrinkage, parallel	1.6 / *	%	ISO 294-4, 2577
Molding shrinkage, normal	1.7 / *	%	ISO 294-4, 2577

Mechanical Properties	dry / cond	Unit	Test Standard
ISO Data			
Tensile Modulus	3200 / 3200	MPa	ISO 527
Stress at Break	60 / 60	MPa	ISO 527
Strain at Break	3.5 / 4	%	ISO 527
Impact Strength (Charpy), +23°C	45 / 45	kJ/m²	ISO 179/1eU
Impact Strength (Charpy), -30°C	45 / 45	kJ/m²	ISO 179/1eU
Notched Impact Strength (Charpy), +23°C	2.5 / 2.5	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
Coeff. of Linear Therm. Expansion, parallel	54 / *	E-6/K	ISO 11359-1/-2
Coeff. of Linear Therm. Expansion, normal	61 / *	E-6/K	ISO 11359-1/-2
Burning Behav. at 1.5 mm Nom. Thickn.	V-0 / *	class	UL 94
Thickness tested	1.6 / *	mm	-
UL recognition	yes / *	-	-
Burning Behav. at thickness h	V-2 / *	class	UL 94
Thickness tested	0.4 / *	mm	-
UL recognition	yes / *	-	-
Oxygen index	37 / *	%	ISO 4589-1/-2

Electrical Properties	dry / cond	Unit	Test Standard
ISO Data			
Relative permittivity, 1MHz	3.5 / 3.5	-	IEC 62631-2-1
Dissipation Factor, 1MHz	120 / 220	E-4	IEC 62631-2-1
Volume Resistivity	1E13 / 1E13	Ohm*m	IEC 62631-3-1
Surface Resistivity	* / 1E15	Ohm	IEC 62631-3-2
Electric Strength	40 / 36	kV/mm	IEC 60243-1
Comparative tracking index	- / 600	-	IEC 60112

Other Properties	dry / cond	Unit	Test Standard
ISO Data			
Water Absorption	2.9 / *	%	Sim. to ISO 62
Humidity absorption	1.2 / *	%	Sim. to ISO 62
Density	1180 / -	kg/m³	ISO 1183

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

Ultrad® Advanced N4U41 LS BK

PPA FR(40)

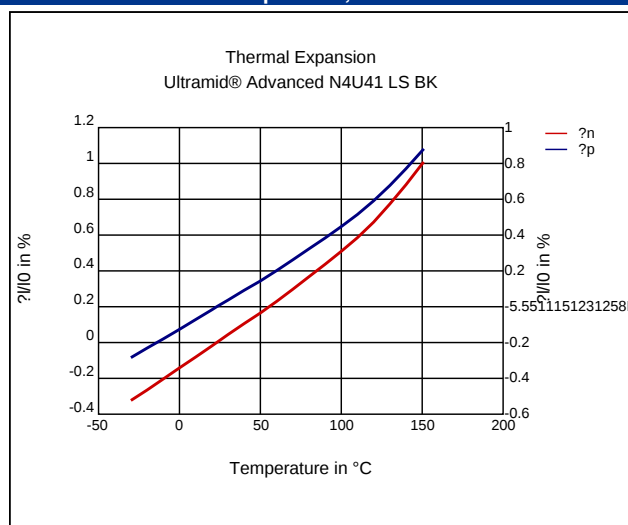
BASF

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

Diagrams

Coeff. of linear thermal expansion, normal



Characteristics

Processing

Injection Molding, Other Extrusion

Delivery form

Black

Special Characteristics

Flame retardant, Halogen-free, Heat aging stabilized

Features

Melt Strength

Chemical Resistance

General Chemical Resistance

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: 100 - 160 °C

injection molding, Mold temperature, recommended: 140 °C

injection molding, Dwell time, thermoplastics: 5 min