

NORYL™ RESIN PX9406K

REGION ASIA

DESCRIPTION

NORYL PX9406K resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS). This injection moldable grade contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of 5VB at 2mm, 5VA at 2.5mm and V0 at 1.5mm. NORYL PX9406 offers strong electrical performance at thin wall, high heat resistance, low warpage, low moisture absorption, and dimensional stability. This material is targeted for consumer electronics applications.

GENERAL INFORMATION

Features	Flame Retardant, Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Dimensional stability
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY

Consumer
Electrical and Electronics
Industrial

SUB INDUSTRY

Home Appliances, Commercial Appliance
Electronic Components, Mobile Phone - Computer - Tablets
Electrical

TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL ⁽¹⁾			
Tensile Stress, yld, Type I, 50 mm/min	66	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	50	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5.7	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	45	%	ASTM D638
Tensile Modulus, 50 mm/min	2700	MPa	ASTM D638
Flexural Stress, yield, 6.4 mm	101	MPa	ASTM D790
Flexural Stress, yld, 1.3 mm/min, 50 mm span	100	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2650	MPa	ASTM D790
Flexural Modulus, 6.4 mm	2650	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	67	MPa	ISO 527
Tensile Stress, break, 50 mm/min	52	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	5	%	ISO 527
Tensile Strain, break, 50 mm/min	55	%	ISO 527
Tensile Modulus, 1 mm/min	2550	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	104	MPa	ISO 178
Flexural Modulus, 2 mm/min	2420	MPa	ISO 178
IMPACT ⁽¹⁾			
Izod Impact, notched, 23°C	170	J/m	ASTM D256
Izod Impact, notched, -30°C	100	J/m	ASTM D256

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CHEMISTRY THAT MATTERS™

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Instrumented Dart Impact Total Energy, 23°C	55	J	ASTM D3763
Izod Impact, notched 80*10*4 +23°C	12	kJ/m ²	ISO 180/ 1A
Izod Impact, notched 80*10*4 -30°C	5	kJ/m ²	ISO 180/ 1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	13	kJ/m ²	ISO 179/ 1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	5	kJ/m ²	ISO 179/ 1eA
THERMAL ⁽¹⁾			
HDT, 0.45 MPa, 3.2 mm, unannealed	128	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	113	°C	ASTM D648
HDT, 0.45 MPa, 6.4 mm, unannealed	130	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	121	°C	ASTM D648
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate A/120	144	°C	ISO 306
Vicat Softening Temp, Rate B/120	134	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	111	°C	ISO 75/Af
Relative Temp Index, Elec ⁽²⁾	110	°C	UL 746B
Relative Temp Index, Mech w/impact ⁽²⁾	105	°C	UL 746B
Relative Temp Index, Mech w/o impact ⁽²⁾	110	°C	UL 746B
PHYSICAL ⁽¹⁾			
Specific Gravity	1.1	-	ASTM D792
Density	1.1	g/cm ³	ISO 1183
Melt Volume Rate, MVR at 250°C/10.0 kg	7	cm ³ /10 min	ISO 1133
Melt Volume Rate, MVR at 280°C/5.0 kg	11	cm ³ /10 min	ISO 1133
Melt Viscosity, 250°C, 1500 sec-1	525	Pa-s	ISO 11443
Melt Viscosity, 260°C, 1500 sec-1	390	Pa-s	ISO 11443
Melt Viscosity, 280°C, 1500 sec-1	250	Pa-s	ISO 11443
ELECTRICAL ⁽¹⁾			
Volume Resistivity	1.4E+17	Ω.cm	ASTM D257
Dielectric Strength, in air, 3.2 mm	49	kV/mm	ASTM D149
High Voltage Arc Track Rate {PLC}	3	PLC Code	UL 746A
Comparative Tracking Index ⁽³⁾	250	V	IEC 60112
Comparative Tracking Index (UL) {PLC}	2	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 0	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 0	≥1.5	mm	UL 746A
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D495
FLAME CHARACTERISTICS ⁽²⁾			
UL Yellow Card Link	E207780-101401128	-	-
UL Recognized, 94V-0 Flame Class Rating	≥1.5	mm	UL 94
UL Recognized, 94-5VA Flame Class Rating	≥2.5	mm	UL 94
UL Recognized, 94-5VB Flame Class Rating	≥2	mm	UL 94
Glow Wire Flammability Index, 1.5 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 2.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0 mm	960	°C	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.5 mm	800	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	800	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	800	°C	IEC 60695-2-13

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
INJECTION MOLDING ⁽⁴⁾			
Drying Temperature	105 – 110	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	8	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	275 – 305	°C	
Nozzle Temperature	275 – 305	°C	
Front - Zone 3 Temperature	265 – 305	°C	
Middle - Zone 2 Temperature	255 – 300	°C	
Rear - Zone 1 Temperature	245 – 295	°C	
Mold Temperature	70 – 100	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	20 – 100	rpm	
Shot to Cylinder Size	30 – 70	%	
Vent Depth	0.038 – 0.051	mm	

(1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.

(2) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses, colors and regions. For details, please see the UL Yellow Card.

(3) Value shown here is based on internal measurement.

(4) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.

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