NORYL™ RESIN PX9406

REGION AMERICAS

DESCRIPTION

NORYL PX9406 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 5VA at 2.5mm, V0 at 0.75mm and UL746C F2 rating. NORYL PX9406 exhibits improved productivity and reliability along with high heat resistance, low warpage, low moisture absorption, and dimensional stability. This material is an excellent candidate for electrical applications.

GENERAL INFORMATION	
Features	Flame Retardant, Heat Stabilized, Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Dimensional stability, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Building and Construction	Building Component
Consumer	Home Appliances, Commercial Appliance
Electrical and Electronics	Electronic Components, Mobile Phone - Computer - Tablets
Industrial	Electrical, Defense

TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL[1]			
Tensile Stress, yld, Type I, 50 mm/min	75	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	55	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	9.5	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	18	%	ASTM D638
Flexural Stress, yld, 2.6 mm/min, 100 mm span	111	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	2640	MPa	ASTM D790
IMPACT[1]			
Izod Impact, unnotched, 23°C	1121	J/m	ASTM D4812
Izod Impact, notched, 23°C	160	J/m	ASTM D256
Instrumented Dart Impact Energy @ peak, 23°C	42	J	ASTM D3763
THERMAL[1]			
Vicat Softening Temp, Rate B/50	150	°C	ASTM D1525
HDT, 0.45 MPa, 6.4 mm, unannealed	133	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	122	°C	ASTM D648
Relative Temp Index, Elec Relative[2]	110	°C	UL 746B
Temp Index, Mech w/impact Relative[2]	105	°C	UL 746B
Temp Index, Mech w/o impact[2]	110	°C	UL 746B

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
PHYSICAL[1]			
Specific Gravity	1.11	-	ASTM D792
Water Absorption, (23°C/24hrs)(3)	0.06 0.5	%	ASTM D570
Mold Shrinkage, flow, 3.2 mm	– 0.7 0.5	%	SABIC method
Mold Shrinkage on Tensile Bar, xflow[3]	– 0.7	%	SABIC method
ELECTRICAL[1]			
Volume Resistivity	2.E+16	Ω.cm	ASTM D257
Surface Resistivity	>1.E+16	Ω	ASTM D257
Dielectric Strength, in oil, 3.2 mm	18.8	kV/mm	ASTM D149
Relative Permittivity, 50/60 Hz	2.57	-	ASTM D150
Relative Permittivity, 1 MHz	2.49	-	ASTM D150
Dissipation Factor, 50/60 Hz	0.0052	-	ASTM D150
Dissipation Factor, 1 MHz	0.0026	-	ASTM D150
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	2	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 0	≥0.75	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 0	≥0.75	mm	UL 746A
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D495
FLAME CHARACTERISTICS[2]			
UL Yellow Card Link	E121562-221212	-	-
UL Recognized, 94-5VA Flame Class Rating	≥2.5	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥0.75	mm	UL 94
Glow Wire Flammability Index, 1.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 2.5 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0 mm	960	°C	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.5 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.5 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	775	°C	IEC 60695-2-13
UV-light, water exposure/immersion	F2	-	UL 746C
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	%	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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)Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.

(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.

DISCLAIMER