NORYL™ Resin PX9406Q

DESCRIPTION

NORYL PX9406Q 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, V1 at 0.75mm, and UL746C F1 rating. NORYL PX9406Q offers strong electrical performance, high heat resistance, low warpage, low moisture absorption, and dimensional stability. This material is intended for electrical applications, solar PV junction box applications, and applications requiring damp heat performance in tough outdoor environments.

GENERAL INFORMATION	
Features	Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, 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
Consumer	Home Appliances, Commercial Appliance
Electrical and Electronics	Energy Management, Electronic Components, Mobile Phone - Computer - Tablets
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20261007

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yield	63	MPa	SABIC - Japan Method
Tensile Strain, break	8.5	%	SABIC - Japan Method
Flexural Stress	99	MPa	ASTM D790
Flexural Modulus	2350	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	73	MPa	ISO 527
Tensile Strain, break, 50 mm/min	8	%	ISO 527
Flexural Strength, 2 mm/min	110	MPa	ISO 178
Flexural Modulus, 2 mm/min	2500	MPa	ISO 178
IMPACT [1]			
Izod impact, notched			
23°C	140	J/m	ASTM D256
80*10*4 +23°C	10	kJ/m²	ISO 180/1A
80*10*4 0°C	11	kJ/m²	ISO 180/1A
80*10*4 -10°C	10	kJ/m²	ISO 180/1A
80*10*4 -20°C	9	kJ/m²	ISO 180/1A
80*10*4 -30°C	6	kJ/m²	ISO 180/1A
80*10*4 -40°C	8	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	11	kJ/m²	ISO 179/1eA
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	9	kJ/m²	ISO 179/1eU
THERMAL [1]			

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
HDT, 0.45 MPa, 6.4 mm, unannealed	136	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	122	°C	ASTM D648
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	117	°C	ISO 75/Af
CTE, -30°C to 30°C	7.E-05	1/°C	TMA
CTE, -40°C to 40°C, flow	8.E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	8.E-05	1/°C	ISO 11359-2
Ball Pressure Test			
approximate maximum	125	°C	IEC 60695-10-2
Vicat Softening Temp, Rate A/120	150	°C	ISO 306
Vicat Softening Temp, Rate B/120	140	°C	ISO 306
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
Water Absorption, (23°C/24hrs)	0.07	%	ASTM D570
Mold Shrinkage, flow, 3.2 mm [3]	0.5 – 0.7	%	SABIC method
Melt Flow Rate			
250°C/10.0 kgf	3.9	g/10 min	ASTM D1238
Density	1.1	g/cm³	ISO 1183
Melt Volume Rate			
280°C/5.0 kg	10	cm³/10 min	ISO 1133
Melt Viscosity, 280°C, 1500 sec-1	278	Pa-s	ISO 11443
ELECTRICAL [1]			
Surface Resistivity	1.E+16	Ω	ASTM D257
Relative Permittivity, 50/60 Hz	2.8	-	ASTM D150
Comparative Tracking Index (UL) {PLC} [2]	2	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 0 [2]	≥0.75	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 0 [2]	≥0.75	mm	UL 746A
High Voltage Arc Track Rate {PLC} [2]	4	PLC Code	UL 746A
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D495
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E207780-11061607	-	-
UL Recognized, 94-5VA Flame Class Rating	≥2.5	mm	UL 94
UL Recognized, 94V-1 Flame Class Rating	≥0.75	mm	UL 94
Glow Wire Flammability Index, 0.75 mm	960	°C	IEC 60695-2-12
Glow Wire Ignitability Temperature, 0.75 mm	750	°C	IEC 60695-2-13
UV-light, water exposure/immersion	f1	-	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	

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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) 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.

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