NORYL™ RESIN N225X

REGION AMERICAS

DESCRIPTION

NORYL N225X 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 3mm and V0 at 1.5mm along with a UL746C Outdoor Suitability rating of F1. NORYL N225X resin offers good dielectric strength and strong electrical performance in addition to low moisture absorption and dimensional stability, This material is an excellent candidate for both indoor and outdoor electrical 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	SUB INDUSTRY
Building and Construction	Building Component
Electrical and Electronics	Electronic Components
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20241016

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	49	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	8	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	17	%	ASTM D638
Flexural Stress, yld, 2.6 mm/min, 100 mm span	99	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	2490	MPa	ASTM D790
IMPACT [1]			
Izod Impact, notched, 23°C	186	J/m	ASTM D256
Izod Impact, notched, -30°C	96	J/m	ASTM D256
Izod Impact, Reverse Notched, 3.2 mm	886	J/m	ASTM D256
Instrumented Dart Impact Energy @ peak, 23°C	39	J	ASTM D3763
Instrumented Dart Impact Energy @ peak, -30°C	11	J	ASTM D3763
THERMAL [1]			
Vicat Softening Temp, Rate B/50	128	°C	ASTM D1525
HDT, 0.45 MPa, 6.4 mm, unannealed	109	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	99	°C	ASTM D648
Relative Temp Index, Elec [2]	95	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	80	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	95	°C	UL 746B

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
PHYSICAL [1]			
Specific Gravity	1.11	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm [3]	0.5 – 0.7	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm [3]	0.5 – 0.7	%	SABIC method
ELECTRICAL [1]			
Volume Resistivity	2.8E+16	Ω.cm	ASTM D257
Surface Resistivity	>1.E+14	Ω	ASTM D257
Dielectric Strength, in oil, 3.2 mm	16.2	kV/mm	ASTM D149
Relative Permittivity, 50/60 Hz	2.69	-	ASTM D150
Relative Permittivity, 1 MHz	2.55	-	ASTM D150
Dissipation Factor, 50/60 Hz	0.01	-	ASTM D150
Dissipation Factor, 1 MHz	0.007	-	ASTM D150
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	1	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 0	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 0	≥6	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 1	≥1.5	mm	UL 746A
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D495
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E121562-221178	-	-
UL Recognized, 94-5VA Flame Class Rating	≥3	mm	UL 94
UL Recognized, 94HB Flame Class Rating	≥0.4	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥1.5	mm	UL 94
Radiant Panel Listing	☑	-	UL Tested
UV-light, water exposure/immersion	F1	-	UL 746C
INJECTION MOLDING [4]			
Drying Temperature	95 – 100	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	8	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	260 – 290	°C	
Nozzle Temperature	260 – 290	°C	
Front - Zone 3 Temperature	250 – 290	°C	
Middle - Zone 2 Temperature	240 – 280	°C	
Rear - Zone 1 Temperature	225 – 275	°C	
Mold Temperature	70 – 95	°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.

DISCLAIMER