NORYL™ RESIN SE100X

REGION AMERICAS

DESCRIPTION

NORYL™ SE100X resin is a non-reinforced blend of polyphenylene ether (PPE) + high impact polystyrene (HIPS). This injection moldable grade contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of V0 at 6mm and V1 at 1.5mm along with a UL746C Outdoor Suitability rating of F1. NORYL SE100X resin offers strong electrical performance, low moisture absorption, good flow, dimensional stability, and hydrolytic stability. This material is targeted for indoor and outdoor electrical enclosures, wall plate / socket, and switch / connector applications.

GENERAL INFORMATION	
Features	Good Processability, High Flow, Hydrolytic Stability, Low Warpage, Non Cl/Br flame retardant, Creep resistant, Weatherable/UV stable
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Building and Construction	Building Component, Water Management
Consumer	Home Appliances, Commercial Appliance
Electrical and Electronics	Lighting
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20231206

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	57	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	46	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	6.5	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	25	%	ASTM D638
Flexural Stress, yld, 2.6 mm/min, 100 mm span	82	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	2300	MPa	ASTM D790
IMPACT [1]			
Izod Impact, notched, 23°C	256	J/m	ASTM D256
Izod Impact, notched, -30°C	90	J/m	ASTM D256
Instrumented Dart Impact Energy @ peak, 23°C	40	J	ASTM D3763
Instrumented Dart Impact Energy @ peak, -30°C	16	J	ASTM D3763
THERMAL [1]			
HDT, 0.45 MPa, 6.4 mm, unannealed	102	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	92	°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
PHYSICAL [1]			

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Specific Gravity	1.1	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm [3]	0.5 – 0.7	%	SABIC method
Mold Shrinkage on Tensile Bar, xflow [3]	0.5 – 0.7	%	SABIC method
ELECTRICAL [1]			
Volume Resistivity	3.1E+16	Ω.cm	ASTM D257
Surface Resistivity	>1.E+15	Ω	ASTM D257
Dielectric Strength, in oil, 3.2 mm	17.9	kV/mm	ASTM D149
Relative Permittivity, 50/60 Hz	2.66	-	ASTM D150
Relative Permittivity, 1 MHz	2.57	-	ASTM D150
Dissipation Factor, 50/60 Hz	0.006	-	ASTM D150
Dissipation Factor, 1 MHz	0.0026	-	ASTM D150
High Voltage Arc Track Rate {PLC} [2]	4	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC} [2]	1	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 0 [2]	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 1 [2]	≥6	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 2 [2]	≥1.5	mm	UL 746A
Arc Resistance, Tungsten {PLC}	7	PLC Code	ASTM D495
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E121562-221213	-	-
UL Recognized, 94V-0 Flame Class Rating	≥6	mm	UL 94
UL Recognized, 94V-1 Flame Class Rating	≥1.5	mm	UL 94
Radiant Panel Listing	☑	-	UL Tested
UV-light, water exposure/immersion	F1	-	UL 746C
Oxygen Index (LOI)	32.5	%	ASTM D2863
INJECTION MOLDING [4]			
Drying Temperature	75 – 80	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	8	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	250 – 275	°C	
Nozzle Temperature	250 – 275	°C	
Front - Zone 3 Temperature	240 – 275	°C	
Middle - Zone 2 Temperature	225 – 270	°C	
Rear - Zone 1 Temperature	215 – 265	°C	
Mold Temperature	55 – 75	°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 and colors. 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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