

NORYL™ RESIN SE1GFN1

REGION ASIA

DESCRIPTION

NORYL SE1GFN1 resin is a 10% glass fiber 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 V1 at 1.5mm along with UL746C Outdoor Suitability rating of F1 and RTI 110C. NORYL SE1GFN1 exhibits high heat resistance, good dielectric strength, dimensional stability, hydrolytic stability, and very low moisture absorption. This material is an excellent candidate for appliance internals, indoor and outdoor electrical enclosures / housings / connectors.

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, High stiffness/Strength

Fillers

Glass Fiber

Polymer Types

Polyphenylene Ether + PS (PPE+PS)

Processing Techniques

Injection Molding

INDUSTRY**SUB INDUSTRY**

Automotive

Automotive EV

Building and Construction

Water Management

Consumer

Home Appliances, Commercial Appliance

Electrical and Electronics

Energy Management, Mobile Phone - Computer - Tablets

Industrial

Electrical

TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL ⁽¹⁾			
Tensile Stress, brk, Type I, 5 mm/min	74	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	5	%	ASTM D638
Flexural Stress, brk, 1.3 mm/min, 50 mm span	119	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	3990	MPa	ASTM D790
Hardness, Rockwell L	104	-	ASTM D785
IMPACT ⁽¹⁾			
Izod Impact, notched, 23°C	96	J/m	ASTM D256
Izod Impact, notched, -40°C	69	J/m	ASTM D256
THERMAL ⁽¹⁾			
Vicat Softening Temp, Rate B/50	147	°C	ASTM D1525
HDT, 1.82 MPa, 6.4 mm, unannealed	131	°C	ASTM D648
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	1.16	-	ASTM D792

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CHEMISTRY THAT MATTERS™

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Water Absorption, (23°C/24hrs)	0.07	%	ASTM D570
Water Absorption, (23°C/Saturated)	0.22	%	ASTM D570
Mold Shrinkage, flow, 3.2 mm ⁽³⁾	0.3 – 0.5	%	SABIC method
ELECTRICAL ⁽¹⁾			
Volume Resistivity	1.E+15	Ω.cm	ASTM D257
Relative Permittivity, 50/60 Hz	3	-	ASTM D150
Relative Permittivity, 1 MHz	3	-	ASTM D150
Dissipation Factor, 50/60 Hz	0.0017	-	ASTM D150
Dissipation Factor, 1 MHz	0.0016	-	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 2	≥0.71	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 1	≥0.71	mm	UL 746A
FLAME CHARACTERISTICS ⁽²⁾			
UL Yellow Card Link	<u>E207780-228589</u>	-	-
UL Yellow Card Link 2	<u>E45587-101825569</u>	-	-
UL Recognized, 94-5VA Flame Class Rating	≥2.5	mm	UL 94
UL Recognized, 94V-1 Flame Class Rating	≥0.44	mm	UL 94
Oxygen Index (LOI)	33.9	%	ASTM D2863
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	280 – 310	°C	
Nozzle Temperature	280 – 310	°C	
Front - Zone 3 Temperature	270 – 310	°C	
Middle - Zone 2 Temperature	260 – 305	°C	
Rear - Zone 1 Temperature	250 – 300	°C	
Mold Temperature	75 – 105	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	20 – 100	rpm	
Shot to Cylinder Size	30 – 70	%	

(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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