

# NORYLTM RESIN SE1GFN3

### **REGION ASIA**

### **DESCRIPTION**

NORYL SE1GFN3 resin is a 30% 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 and RTI of 110C. NORYL SE1GFN3 exhibits high heat resistance, good dielectric strength, dimensional stability, hydrolytic stability, and very low moisture absorption. This material is an excellent candidate for a variety of applications such as solar frames, unattended power supply (UPS) inverter/charger, indoor and outdoor electrical enclosures / housings / connectors, and wall plates / sockets / switches.

GENERAL INFORMATION	
Features	Flame Retardant, Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Non CI/Br flame retardant, Non halogenated flame retardant, Dimensional stability, High stiffness/Strength, No PFAS intentionally added
Fillers	Glass Fiber
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding
INDUSTRY	SUB INDUSTRY
Automotive	Automotive EV Batteries
Electrical and Electronics	Energy Management, Mobile Phone - Computer - Tablets

Electrical

## **TYPICAL PROPERTY VALUES**

Revision 20241016

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL (1)			
Tensile Stress, brk, Type I, 5 mm/min	120	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	5	%	ASTM D638
Flexural Stress, yld, 2.6 mm/min, 100 mm span	172	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	7790	MPa	ASTM D790
Hardness, Rockwell L	108	-	ASTM D785
IMPACT (1)			
Izod Impact, notched, 23°C	117	J/m	ASTM D256
Izod Impact, notched, -40°C	96	J/m	ASTM D256
THERMAL (1)			
HDT, 0.45 MPa, 6.4 mm, unannealed	140	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	135	°C	ASTM D648
CTE, -40°C to 95°C, flow	2.52E-05	1/°C	ASTM E831
Relative Temp Index, Elec <sup>(2)</sup>	110	°C	UL 746B
Relative Temp Index, Mech w/impact (2)	105	°C	UL 746B
Relative Temp Index, Mech w/o impact <sup>(2)</sup>	110	°C	UL 746B
PHYSICAL (1)			
Specific Gravity	1.31	-	ASTM D792



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Water Absorption, (23°C/24hrs)	0.06	%	ASTM D570
Mold Shrinkage, flow, 3.2 mm <sup>(3)</sup>	0.1 – 0.4	%	SABIC method
ELECTRICAL (1)			
Dielectric Strength, in oil, 3.2 mm	20.8	kV/mm	ASTM D149
Relative Permittivity, 50/60 Hz	3.15	-	ASTM D150
Dissipation Factor, 50/60 Hz	0.002	_	ASTM D150
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 2	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 0	≥1.5	mm	UL 746A
FLAME CHARACTERISTICS (2)			
UL Yellow Card Link	E207780-228591	-	-
UL Yellow Card Link 2	<u>E45587-237105</u>	-	
UL Recognized, 94V-1 Flame Class Rating	≥0.71	mm	UL 94
Oxygen Index (LOI)	35.5	%	ASTM D2863
INJECTION MOLDING (4)			
Drying Temperature	110 – 120	°C	
	110 – 120 3 – 4	°C Hrs	
Drying Temperature			
Drying Temperature Drying Time	3 – 4	Hrs	
Drying Temperature Drying Time Drying Time (Cumulative)	3 – 4	Hrs Hrs	
Drying Temperature Drying Time Drying Time (Cumulative) Maximum Moisture Content	3 – 4 8 0.02	Hrs Hrs	
Drying Temperature Drying Time Drying Time (Cumulative) Maximum Moisture Content Melt Temperature	3 - 4 8 0.02 300 - 325	Hrs Hrs %	
Drying Temperature Drying Time Drying Time (Cumulative) Maximum Moisture Content Melt Temperature Nozzle Temperature	3 - 4 8 0.02 300 - 325 300 - 325	Hrs Hrs % °C °C	
Drying Temperature  Drying Time  Drying Time (Cumulative)  Maximum Moisture Content  Melt Temperature  Nozzle Temperature  Front - Zone 3 Temperature	3 - 4 8 0.02 300 - 325 300 - 325 290 - 325	Hrs Hrs % °C °C	
Drying Temperature  Drying Time  Drying Time (Cumulative)  Maximum Moisture Content  Melt Temperature  Nozzle Temperature  Front - Zone 3 Temperature  Middle - Zone 2 Temperature	3 - 4 8 0.02 300 - 325 300 - 325 290 - 325 275 - 320	Hrs Hrs % °C °C °C	
Drying Temperature Drying Time Drying Time (Cumulative) Maximum Moisture Content Melt Temperature Nozzle Temperature Front - Zone 3 Temperature Middle - Zone 2 Temperature Rear - Zone 1 Temperature	3 - 4 8 0.02 300 - 325 300 - 325 290 - 325 275 - 320 265 - 315	Hrs Hrs % °C °C °C °C °C	
Drying Temperature  Drying Time  Drying Time (Cumulative)  Maximum Moisture Content  Melt Temperature  Nozzle Temperature  Front - Zone 3 Temperature  Middle - Zone 2 Temperature  Rear - Zone 1 Temperature  Mold Temperature	3 - 4 8 0.02 300 - 325 300 - 325 290 - 325 275 - 320 265 - 315 80 - 110	Hrs Hrs % °C °C °C °C °C	

<sup>(1)</sup> 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.

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<sup>(2)</sup> 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.

<sup>(3)</sup> 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.

<sup>(4)</sup> 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.