

NORYL™ SE1GFN3 resin

Polyphenylene Ether + PS

SABIC Innovative Plastics

Message:

NORYL SE1GFN3 is a 30% glass reinforced, injection moldable modified polyphenylene ether resin. Designed for improved dimensional stability and good flow, this resin also uses non-chlorinated, non-brominated FR additives to achieve a V1 UL94 rating at 1.5 mm and UL94 5VA rating @ 3.0 mm. NORYL SE1GFN3 may be an excellent material candidate for electrical or electronic applications requiring good rheological properties, heat resistance, hydrolysis resistance, low density and thin wall flame resistance. SE1GFN3 is halogen free according to VDE/DIN 472 part 815.

General Information			
UL YellowCard	E45329-236778		
Filler / Reinforcement	Glass fiber reinforced material, 30% filler by weight		
Additive	Flame retardancy		
Features	Chlorine Free		
	Good dimensional stability		
	Low density		
	Good liquidity		
	Heat resistance, medium		
	Hydrolysis resistance		
	Bromine-free		
	Flame retardancy		
Uses	Electrical/Electronic Applications		
Agency Ratings	DIN VDE 0472 part 815		
RoHS Compliance	RoHS compliance		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Density	1.29	g/cm ³	ISO 1183
Melt Volume-Flow Rate (MVR) (280°C/10.0 kg)	9.00	cm ³ /10min	ISO 1133
Molding Shrinkage - Flow ¹	0.10 - 0.30	%	Internal method
Water Absorption			ISO 62
Saturated, 23°C	0.23	%	ISO 62
Equilibrium, 23°C, 50% RH	0.070	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Ball Indentation Hardness (H 358/30)	130	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	8000	MPa	ISO 527-2/1
Tensile Stress (Break)	105	MPa	ISO 527-2/5
Tensile Strain (Break)	2.0	%	ISO 527-2/5
Flexural Modulus ²	6000	MPa	ISO 178

Flexural Stress	130	MPa	ISO 178
Taber Abrasion Resistance (1000 Cycles, 1000 g, CS-17 Wheel)	55.0	mg	Internal method
Impact	Nominal Value	Unit	Test Method
Charpy Unnotched Impact Strength ³			ISO 179/1eU
-30°C	30	kJ/m ²	ISO 179/1eU
23°C	30	kJ/m ²	ISO 179/1eU
Unnotched Izod Impact Strength ⁴			ISO 180/1U
-30°C	25	kJ/m ²	ISO 180/1U
23°C	25	kJ/m ²	ISO 180/1U
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature ⁵			
0.45 MPa, unannealed, 100 mm span	140	°C	ISO 75-2/Be
1.8 MPa, unannealed, 100 mm span	135	°C	ISO 75-2/Ae
Vicat Softening Temperature			
--	155	°C	ISO 306/A50
--	145	°C	ISO 306/B50
--	150	°C	ISO 306/B120
Ball Pressure Test			IEC 60695-10-2
125°C	Pass		IEC 60695-10-2
140°C ⁶	Pass		IEC 60695-10-2
Linear thermal expansion coefficient			
Flow: -40 to 40°C	3.7E-5	cm/cm/°C	ASTM E831, ISO 11359-2
Flow: 23 to 80°C	3.0E-5	cm/cm/°C	ISO 11359-2
Lateral: -40 to 40°C	5.5E-5	cm/cm/°C	ASTM E831, ISO 11359-2
Lateral: 23 to 80°C	7.0E-5	cm/cm/°C	ISO 11359-2
Thermal Conductivity	0.28	W/m/K	ISO 8302
RTI Elec	110	°C	UL 746
RTI Imp	105	°C	UL 746
RTI	110	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093
Volume Resistivity	1.0E+15	ohms · cm	IEC 60093
Dielectric Strength			IEC 60243-1
0.800mm, in oil	30	kV/mm	IEC 60243-1
1.60mm, in oil	25	kV/mm	IEC 60243-1
3.20mm, in oil	16	kV/mm	IEC 60243-1
Relative Permittivity			IEC 60250
50 Hz	3.10		IEC 60250
60 Hz	3.10		IEC 60250
1 MHz	3.00		IEC 60250
Dissipation Factor			IEC 60250

50 Hz	8.0E-3		IEC 60250
60 Hz	8.0E-3		IEC 60250
1 MHz	5.0E-3		IEC 60250
Comparative Tracking Index	300	V	IEC 60112
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
1.50 mm	V-1		UL 94
6.00 mm	V-0		UL 94
3.00 mm	5VA		UL 94
Glow Wire Flammability Index (3.20 mm)	960	°C	IEC 60695-2-12
Oxygen Index	31	%	ISO 4589-2
Injection	Nominal Value	Unit	
Drying Temperature	110 - 120	°C	
Drying Time	2.0 - 3.0	hr	
Hopper Temperature	80.0 - 100	°C	
Rear Temperature	260 - 280	°C	
Middle Temperature	280 - 300	°C	
Front Temperature	300 - 320	°C	
Nozzle Temperature	280 - 300	°C	
Processing (Melt) Temp	300 - 320	°C	
Mold Temperature	100 - 130	°C	
NOTE			
1.	Tensile Bar		
2.	2.0 mm/min		
3.	80*10*4 sp=62mm		
4.	80*10*4		
5.	120*10*4 mm		
6.	Approximate maximum		

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