

NORYL™ NH7111E resin

Polyphenylene Ether + PS

SABIC Innovative Plastics

Message:

NORYL EXNL0280 is a glass fiber reinforced, injection moldable modified polyphenylene ether resin. Designed for good dimensional stability and low warpage, this resin also uses non-halogenated FR additives to achieve a V1 UL94 rating at 1.6 mm and V0 UL94 at 3.00mm with a CTI value of 400 V. NORYL EXNL0280 may be an excellent material candidate for application requiring electrically insulating properties, low moisture absorption, low warpage and thin wall flame resistance. Available in limited light grey colors

General Information			
Filler / Reinforcement	Glass Fiber		
Additive	Flame Retardant		
Features	Electrically Insulating		
	Flame Retardant		
	Good Dimensional Stability		
	Halogen Free		
	Low Moisture Absorption		
	Low Warpage		
Uses	Thin-walled Parts		
Appearance	Light Grey		
Processing Method	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.24	g/cm³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (300°C/5.0 kg)	18	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (280°C/5.0 kg)	15.0	cm³/10min	ISO 1133
Molding Shrinkage - Flow (3.20 mm)	0.50 to 0.70	%	Internal Method
Water Absorption			ISO 62
Saturation, 23°C	0.23	%	
Equilibrium, 23°C, 50% RH	0.070	%	
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ¹	3600	MPa	ASTM D638
--	3790	MPa	ISO 527-2/1
Tensile Strength			
Yield ²	69.0	MPa	ASTM D638
Yield	76.0	MPa	ISO 527-2/5
Break ³	66.6	MPa	ASTM D638
Break	75.0	MPa	ISO 527-2/5
Tensile Elongation			

Yield ⁴	3.2	%	ASTM D638
Yield	3.4	%	ISO 527-2/5
Break ⁵	4.5	%	ASTM D638
Break	3.6	%	ISO 527-2/5
Flexural Modulus			
50.0 mm Span ⁶	3570	MPa	ASTM D790
-- ⁷	3620	MPa	ISO 178
Flexural Stress			
--	127	MPa	ISO 178
Yield, 50.0 mm Span ⁸	120	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength ⁹ (23°C)	26	kJ/m ²	ISO 179/1eA
Notched Izod Impact			
23°C	45	J/m	ASTM D256
23°C ¹⁰	7.0	kJ/m ²	ISO 180/1A
Instrumented Dart Impact (23°C, Total Energy)	10.6	J	ASTM D3763
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
1.8 MPa, Unannealed, 3.20 mm	140	°C	ASTM D648
1.8 MPa, Unannealed, 64.0 mm Span ¹¹	140	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	149	°C	ASTM D1525 ¹²
--	155	°C	ISO 306/B120
CLTE			
Flow : -40 to 40°C	4.4E-5	cm/cm/°C	
Transverse : -40 to 40°C	7.1E-5	cm/cm/°C	
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	3.0E+13 to 5.0E+13	ohms	IEC 60093
Volume Resistivity	14 to 16	ohms · cm	IEC 60093
Electric Strength (3.20 mm, in Oil)	27	kV/mm	IEC 60243-1
Relative Permittivity (1 MHz)	2.97		IEC 60250
Comparative Tracking Index	400	V	IEC 60112
High Amp Arc Ignition (HAI)	PLC 4		UL 746
Hot-wire Ignition (HWI)	PLC 0		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
1.00 mm, Testing by SABIC	V-1		
3.00 mm, Testing by SABIC	V-0		
Glow Wire Flammability Index (1.00 mm)	960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature			IEC 60695-2-13
1.00 mm	775	°C	

2.00 mm	775	°C
2.50 mm	775	°C
3.00 mm	775	°C
Injection	Nominal Value	Unit
Drying Temperature	100 to 120	°C
Drying Time	2.0 to 3.0	hr
Hopper Temperature	60.0 to 80.0	°C
Rear Temperature	240 to 260	°C
Middle Temperature	260 to 280	°C
Front Temperature	280 to 300	°C
Nozzle Temperature	260 to 280	°C
Processing (Melt) Temp	280 to 300	°C
Mold Temperature	80.0 to 120	°C
NOTE		
1.	5.0 mm/min	
2.	Type I, 5.0 mm/min	
3.	Type I, 5.0 mm/min	
4.	Type I, 5.0 mm/min	
5.	Type I, 5.0 mm/min	
6.	1.3 mm/min	
7.	2.0 mm/min	
8.	1.3 mm/min	
9.	80*10*4 sp=62mm	
10.	80*10*4	
11.	80*10*4 mm	
12.	Rate B (120°C/h), Loading 2 (50 N)	

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