NORYL™ GFN2 resin

Polyphenylene Ether + PS

SABIC Innovative Plastics

PROSPECTOR®

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Technical Data

Product Description

PPE+PS blend. 20% Glass reinforced. UL746C F1. Low water absorption. Hydrolytic stability. Dimensional stability. Suitable for fluid engineering applications including pump housings and impellers, valve components and others.

General

Material Status	• Commercial: Active		
Literature [1]	• Technical Datasheet		
UL Yellow Card [2]	• E121562-221161		
Search for UL Yellow Card	• SABIC Innovative Plastics • NORYL™		
Availability	• North America		
Filler / Reinforcement	• Glass Fiber, 20% Filler by Weight		
Features	• Good Dimensional Stability	• Hydrolytically Stable	• Low to No Water Absorption
Uses	• Housings	• Pump Parts	• Valves/Valve Parts
Processing Method	• Injection Molding		
Multi-Point Data	• Coefficient of Thermal Expansion vs. Temperature (ASTM E831) • Elastic Modulus vs Temperature (ASTM D4065) • Flexural DMA (ASTM D4065) • Instrumented Impact (Energy) (ASTM D3763) • Instrumented Impact (Load) (ASTM D3763) • Pressure-Volume-Temperature (PVT - Zoller Method) • Shear DMA (ASTM D4065) • Specific Heat vs. Temperature (ASTM D3417) • Tensile Creep (ASTM D2990) • Tensile Fatigue • Tensile Stress vs. Strain (ASTM D638) • Thermal Conductivity vs. Temperature (ASTM E1530) • Viscosity vs. Shear Rate (ASTM D3835)		

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Specific Gravity	1.20	1.20 g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (300°C/5.0 kg)	9.0 g/10 min	9.0 g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (300°C/5.0 kg)	0.494 in³/10min	8.10 cm³/10min	ISO 1133
Molding Shrinkage - Flow (0.126 in (3.20 mm))	2.0E-3 to 5.0E-3 in/in	0.20 to 0.50 %	Internal Method
Water Absorption (24 hr)	0.060 %	0.060 %	ASTM D570
Outdoor Suitability	f1	f1	UL 746C
Mechanical	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Tensile Modulus			
-- [4]	899000 psi	6200 MPa	ASTM D638
--	1.03E+6 psi	7070 MPa	ISO 527-2/1
Tensile Strength			
Break [5]	13100 psi	90.0 MPa	ASTM D638
Break	14100 psi	97.3 MPa	ISO 527-2/5
Tensile Elongation			
Break [5]	2.6 %	2.6 %	ASTM D638
Break	2.5 %	2.5 %	ISO 527-2/5
Flexural Modulus			
1.97 in (50.0 mm) Span [6]	841000 psi	5800 MPa	ASTM D790
-- [7]	949000 psi	6540 MPa	ISO 178
Flexural Stress			
-- [7, 8]	24200 psi	167 MPa	ISO 178
Yield, 1.97 in (50.0 mm) Span [6]	23200 psi	160 MPa	ASTM D790

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Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength (73°F (23°C))	5.5 ft·lb/in²	12 kJ/m²	ISO 179/2C
Notched Izod Impact			
-40°F (-40°C)	1.8 ft·lb/in	96 J/m	ASTM D256
73°F (23°C)	2.2 ft·lb/in	120 J/m	ASTM D256
73°F (23°C) [9]	5.4 ft·lb/in²	11 kJ/m²	ISO 180/1A
Unnotched Izod Impact (73°F (23°C))	12 ft·lb/in	650 J/m	ASTM D4812
Instrumented Dart Impact			ASTM D3763
73°F (23°C), Total Energy	200 in·lb	22.6 J	

Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness (L-Scale)	106	106	ASTM D785

Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			
66 psi (0.45 MPa), Unannealed, 0.126 in (3.20 mm)	285 °F	141 °C	ASTM D648
66 psi (0.45 MPa), Unannealed, 0.252 in (6.40 mm)	290 °F	143 °C	ASTM D648
66 psi (0.45 MPa), Unannealed, 3.94 in (100 mm) Span [10]	289 °F	143 °C	ISO 75-2/Be
264 psi (1.8 MPa), Unannealed, 0.126 in (3.20 mm)	275 °F	135 °C	ASTM D648
264 psi (1.8 MPa), Unannealed, 0.252 in (6.40 mm)	280 °F	138 °C	ASTM D648
264 psi (1.8 MPa), Unannealed, 3.94 in (100 mm) Span [10]	279 °F	137 °C	ISO 75-2/Ae
Vicat Softening Temperature			
--	289 °F	143 °C	ISO 306/B50
--	295 °F	146 °C	ISO 306/B120
CLTE			ASTM E831
Flow : -40 to 104°F (-40 to 40°C)	1.6E-5 in/in/°F	2.9E-5 cm/cm/°C	
Transverse : -40 to 104°F (-40 to 40°C)	4.6E-5 in/in/°F	8.3E-5 cm/cm/°C	
RTI Elec	194 °F	90.0 °C	UL 746
RTI Imp	194 °F	90.0 °C	UL 746
RTI Str	194 °F	90.0 °C	UL 746

Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Dielectric Strength			ASTM D149
0.126 in (3.20 mm), in Oil	420 V/mil	17 kV/mm	
Dielectric Constant			ASTM D150
50 Hz	2.86	2.86	
60 Hz	2.86	2.86	
Dissipation Factor			ASTM D150
50 Hz	8.0E-4	8.0E-4	
60 Hz	8.0E-4	8.0E-4	
Arc Resistance [11]	PLC 7	PLC 7	ASTM D495
High Amp Arc Ignition (HAI)	PLC 4	PLC 4	UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 4	PLC 4	UL 746
Hot-wire Ignition (HWI)	PLC 4	PLC 4	UL 746

Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating (0.0580 in (1.47 mm))	HB	HB	UL 94
Oxygen Index	26 %	26 %	ASTM D2863

Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	230 to 250 °F	110 to 121 °C
Drying Time	3.0 to 4.0 hr	3.0 to 4.0 hr
Drying Time, Maximum	8.0 hr	8.0 hr

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Injection	Nominal Value (English)	Nominal Value (SI)
Suggested Max Moisture	0.020 %	0.020 %
Suggested Shot Size	30 to 70 %	30 to 70 %
Rear Temperature	510 to 600 °F	266 to 316 °C
Middle Temperature	530 to 610 °F	277 to 321 °C
Front Temperature	550 to 620 °F	288 to 327 °C
Nozzle Temperature	570 to 620 °F	299 to 327 °C
Processing (Melt) Temp	570 to 620 °F	299 to 327 °C
Mold Temperature	180 to 230 °F	82.2 to 110 °C
Back Pressure	50.0 to 100 psi	0.345 to 0.689 MPa
Screw Speed	20 to 100 rpm	20 to 100 rpm

Notes

[1] These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.

[2] A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

[3] Typical properties: these are not to be construed as specifications.

[4] 0.20 in/min (5.0 mm/min)

[5] Type I, 0.20 in/min (5.0 mm/min)

[6] 0.051 in/min (1.3 mm/min)

[7] 0.079 in/min (2.0 mm/min)

[8] Yield

[9] 80*10*4

[10] 120*10*4 mm

[11] Tungsten Electrode

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Where to Buy

Supplier

SABIC Innovative Plastics
Pittsfield, MA USA
Telephone: 800-845-0600
Web: http://www.sabic-ip.com/

Distributor

Nexeo Solutions
Telephone: 888-594-6009
Web: http://www.nexeosolutions.com/
Availability: North America

Reseller

A Reseller is not a distributor authorized by the Supplier.

Guangzhou Huaxiu Plastics Co., Ltd.
Telephone: +86-20-82582555
Web: http://www.va-so.com
Availability: China

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