

# NORYL™ RESIN SG039916

## DESCRIPTION

NORYL SG039916 resin is a 30% glass fiber reinforced alloy of Polyphenylene Ether (PPE) + Polyamide (PA) with 38% upcycled Polyamide content. This injection moldable grade has high stiffness (flexural modulus 8200 MPa), excellent chemical resistance, and high heat resistance. NORYL SG039916 resin is an excellent candidate for a wide variety of applications including automotive under the bonnet applications and water meter housings.

GENERAL INFORMATION	
Features	Chemical Resistance, Hydrolytic Stability, Low Warpage, Low Moisture Absorption, Low Specific Gravity, Potable water safe, Dimensional stability, High stiffness/Strength, High temperature resistance, No PFAS intentionally added
Fillers	Glass Fiber
Polymer Types	Polyphenylene Ether + PA (PPE+Nylon)
Processing Techniques	Injection Molding

## TYPICAL PROPERTY VALUES

Revision 20250228

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL <sup>(1)</sup>			
Tensile Modulus, 1 mm/min	7800	MPa	ISO 527
Tensile Stress, break, 5 mm/min	120	MPa	ISO 527
Tensile Nominal Strain, break, 5 mm/min	2.5	%	ISO 527
Flexural Modulus, 2 mm/min	6500	MPa	ISO 178
Flexural Stress, break, 2 mm/min	190	MPa	ISO 178
Tensile Modulus, 5 mm/min	8952	MPa	ASTM D638
Tensile Stress, yld, Type I, 5 mm/min	145	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	144	MPa	ASTM D638
Tensile Nominal Strain, brk, Type I, 5 mm/min	2.9	%	ASTM D638
Flexural Modulus	8510	MPa	ASTM D790
Flexural Stress	227	MPa	ASTM D790
Ball Indentation Hardness, H358/30	213	MPa	ISO 2039-1
IMPACT <sup>(1)</sup>			
Izod Impact, notched 80*10*4 +23°C	8	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	8	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, unnotched 80*10*4 +23°C	50	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	50	kJ/m <sup>2</sup>	ISO 180/1U
Charpy Impact, notched, 23°C	8	kJ/m <sup>2</sup>	ISO 179/2C
Charpy Impact, notched, -30°C	8	kJ/m <sup>2</sup>	ISO 179/2C
Charpy Impact, unnotched, 23°C	50	kJ/m <sup>2</sup>	ISO 179/2C
Charpy Impact, unnotched, -30°C	50	kJ/m <sup>2</sup>	ISO 179/2C
Izod Impact, notched, 23°C	125	J/m	ASTM D256
Izod Impact, notched, -30°C	95	J/m	ASTM D256
Izod Impact, unnotched, 23°C	931	J/m	ASTM D4812
Izod Impact, unnotched, -30°C	870	J/m	ASTM D4812
THERMAL <sup>(1)</sup>			
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	194	°C	ISO 75/Af

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HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	210	°C	ISO 75/Bf
HDT, 1.82 MPa, 3.2mm, unannealed	191	°C	ASTM D648
HDT, 0.45 MPa, 3.2 mm, unannealed	209	°C	ASTM D648
Vicat Softening Temp, Rate B/50	206	°C	ISO 306
Vicat Softening Temp, Rate B/120	203	°C	ISO 306
Vicat Softening Temp, Rate B/50	204	°C	ASTM D1525
Vicat Softening Temp, Rate B/120	194	°C	ASTM D1525
CTE, 23°C to 60°C, flow	2.2E-05	1/°C	ASTM E831
CTE, 23°C to 60°C, xflow	1.0E-05	1/°C	ASTM E831
Ball Pressure Test, 125°C +/- 2°C	Passes	-	IEC 60695-10-2
Relative Temp Index, Elec	65	°C	UL 746B
Relative Temp Index, Mech w/impact	65	°C	UL 746B
Relative Temp Index, Mech w/o impact	65	°C	UL 746B
PHYSICAL <sup>(1)</sup>			
Density	1.30	g/cm³	ISO 1183
Moisture Absorption, (23°C/50% RH/24hrs)	0.47	%	ISO 62-4
Water Absorption, (23°C/saturated)	2.4	%	ISO 62-1
Mold Shrinkage, flow <sup>(2)</sup>	0.5	%	SABIC method
Mold Shrinkage, xflow <sup>(2)</sup>	1.1	%	SABIC method
Melt Volume Rate, MVR at 280°C/5.0 kg	6	cm³/10 min	ISO 1133
Specific Gravity	1.3	-	ASTM D792
Moisture Absorption, (23°C/50% RH/24 hrs)	0.47	%	ASTM D570
Water Absorption, (23°C/ saturated)	2.4	%	ASTM D570
ELECTRICAL <sup>(1) (3)</sup>			
Comparative Tracking Index	225	V	IEC 60112
Comparative Tracking Index (UL) {PLC}	2	PLC Code	UL 746A
Hot-Wire Ignition (HWI), PLC 2	3	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 4	2	mm	UL 746A
High Amp Arc Ignition, 1.5 mm	0	PLC Code	UL 746A
High Amp Arc Ignition, 3.0 mm	0	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
FLAME CHARACTERISTICS <sup>(3)</sup>			
UL Yellow Card Link	<a href="#">E45329-104703209</a>	-	-
UL Recognized, 94HB Flame Class Rating	≥1.5	mm	UL 94
Oxygen Index (LOI)	27	%	ISO 4589
INJECTION MOLDING <sup>(4)</sup>			
Drying Temperature	100 – 120	°C	
Drying Time	2 – 3	Hrs	
Maximum Moisture Content	0.07	%	
Melt Temperature	280 – 320	°C	
Nozzle Temperature	270 – 310	°C	
Front - Zone 3 Temperature	280 – 320	°C	
Middle - Zone 2 Temperature	270 – 310	°C	
Rear - Zone 1 Temperature	260 – 300	°C	
Hopper Temperature	60 – 80	°C	

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Mold Temperature	100 – 120	°C	

- (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) 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. 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.
- (3) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.
- (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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