

# NORYL GTX™ RESIN GTX918A

## DESCRIPTION

NORYL GTX918A resin is a non-reinforced alloy of Polyphenylene Ether (PPE) + Polyamide (PA). This injection moldable grade exhibits high heat resistance, excellent chemical resistance, high melt flow, and added mold release. NORYL GTX918A resin may be an excellent candidate for automotive under-the-hood and electrical applications requiring the retention of properties while under thermal load.

GENERAL INFORMATION	
Features	Chemical Resistance, Good Processability, Hydrolytic Stability, Low Warpage, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Dimensional stability, High stiffness/Strength, High temperature resistance, Impact resistant, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PA (PPE+Nylon)
Processing Techniques	Injection Molding
INDUSTRY	
Automotive	Automotive Under the Hood
Electrical and Electronics	Electronic Components, Mobile Phone - Computer - Tablets
Industrial	Electrical

## TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL <sup>(1)</sup></b>			
Tensile Stress, yld, Type I, 50 mm/min	62	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	57	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	11.4	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	53	%	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	98	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2360	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	60	MPa	ISO 527
Tensile Stress, break, 50 mm/min	55	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4.5	%	ISO 527
Tensile Strain, break, 50 mm/min	30	%	ISO 527
Flexural Stress, yield, 2 mm/min	85	MPa	ISO 178
Flexural Modulus, 2 mm/min	2200	MPa	ISO 178
<b>IMPACT <sup>(1)</sup></b>			
Izod Impact, notched, 23°C	202	J/m	ASTM D256
Instrumented Dart Impact Energy @ peak, 23°C	40	J	ASTM D3763
Izod Impact, notched 80*10*4 +23°C	20	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	10	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	20	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	10	kJ/m <sup>2</sup>	ISO 179/1eA
<b>THERMAL <sup>(1)</sup></b>			

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Vicat Softening Temp, Rate B/50	242	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	188	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	148	°C	ASTM D648
CTE, -40°C to 40°C, flow	6.48E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	6.84E-05	1/°C	ASTM E831
Thermal Conductivity	0.25	W/m·°C	ASTM C177
CTE, 23°C to 60°C, flow	8.E-05	1/°C	ISO 11359-2
CTE, 23°C to 60°C, xflow	8.E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate A/50	245	°C	ISO 306
Vicat Softening Temp, Rate B/50	190	°C	ISO 306
Vicat Softening Temp, Rate B/120	195	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	185	°C	ISO 75/Be
<b>PHYSICAL <sup>(1)</sup></b>			
Specific Gravity	1.09	-	ASTM D792
Water Absorption, (23°C/ saturated)	4.2	%	ASTM D570
Mold Shrinkage, flow, 3.2 mm <sup>(2)</sup>	1.3 – 1.6	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm <sup>(2)</sup>	1 – 1.3	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	45	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 280°C/ 1.2 kg	5	cm <sup>3</sup> /10 min	ISO 1133
<b>INJECTION MOLDING <sup>(3) (4) (5) (6) (7)</sup></b>			
Drying Temperature	95 – 105	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	8	Hrs	
Maximum Moisture Content	0.07	%	
Minimum Moisture Content	0.02	%	
Melt Temperature	270 – 295	°C	
Nozzle Temperature	270 – 295	°C	
Front - Zone 3 Temperature	265 – 295	°C	
Middle - Zone 2 Temperature	260 – 295	°C	
Rear - Zone 1 Temperature	255 – 295	°C	
Mold Temperature	65 – 95	°C	
Back Pressure	0.3 – 1.4	MPa	
Screw Speed	20 – 100	rpm	
Shot to Cylinder Size	30 – 50	%	
Vent Depth	0.013 – 0.038	mm	

- (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.
- (3) 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.
- (4) Dry at recommended temperatures and times for optimum performance. Overdrying can cause loss of physical properties and/or create appearance defects. Do not exceed recommended basic drying time and temperature above or: 4-8 hrs at 95°C (200°F), 10 hrs max 6-12 hrs at 80°C (175°F), 16 hrs max 8-16 hrs at 65°C (150°F), 24 hrs max. AVOID air circulating tray ovens. Moisture levels in heated ambient air can exceed moisture level in the resin itself, causing moisture ABSORPTION not drying.
- (5) Avoid melt temperature in excess of 300°C (575°F) and residence times over 6-8 minutes (may affect properties and/or appearance).
- (6) Nozzle temperature controls assist in elimination of drool premature freeze-off.
- (7) Shot sizes in excess of 50% barrel capacity can lead to difficulties in providing a consistent, homogenous plastic melt.



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