NORYL GTX™ RESIN GTX902

DESCRIPTION

NORYL GTX902 resin is a non-reinforced alloy of Polyphenylene Ether (PPE) + Polyamide (PA). This injection moldable grade exhibits excellent chemical resistance and excellent paintability. NORYL GTX902 resin is targeted for automotive wheel cover applications.

GENERAL INFORMATION	
Features	Chemical Resistance, 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	SUB INDUSTRY
Automotive	Heavy Truck, Automotive Exteriors, Recreational/Specialty Vehicles
Consumer	Personal Recreation

TYPICAL PROPERTY VALUES

Revision 20241014

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	58	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	54	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	11	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	45	%	ASTM D638
Tensile Modulus, 50 mm/min	2173	MPa	ASTM D638
Flexural Modulus, 1.3 mm/min, 50 mm span	2120	MPa	ASTM D790
Flexural Strength, 2.6 mm/min, 100 mm span	89	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	2240	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	58	MPa	ISO 527
Tensile Stress, break, 50 mm/min	54	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	9	%	ISO 527
Tensile Strain, break, 50 mm/min	46	%	ISO 527
Tensile Modulus, 1 mm/min	2154	MPa	ISO 527
Flexural Strength, 2 mm/min	91	MPa	ISO 178
Flexural Modulus, 2 mm/min	2227	MPa	ISO 178
Hardness, Rockwell R	118	-	ASTM D785
Taber Abrasion, CS-17, 1 kg	19	mg/1000cy	ASTM D1044
IMPACT [1]			
Izod Impact, notched, 23°C	220	J/m	ASTM D256
Izod Impact, notched, -30°C	117	J/m	ASTM D256
Izod Impact, notched, -40°C	53	J/m	ASTM D256
Izod Impact, unnotched, 23°C	3204	J/m	ASTM D4812

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, unnotched, -30°C	3204	J/m	ASTM D4812
Izod Impact, unnotched, -40°C	3204	J/m	ASTM D4812
Izod Impact, notched 80*10*4 +23°C	18	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*4 +23°C	NB	kJ/m²	ISO 180/1U
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	19	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	NB	kJ/m²	ISO 179/1eU
Instrumented Dart Impact Energy @ peak, 23°C	46	J	ASTM D3763
Instrumented Dart Impact Energy @ peak, -30°C	36	J	ASTM D3763
Instrumented Impact Energy @ peak, -40°C	19	J	ASTM D3763
THERMAL [1]			
HDT, 0.45 MPa, 3.2 mm, unannealed	155	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	120	°C	ASTM D648
HDT, 0.45 MPa, 6.4 mm, unannealed	155	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	127	°C	ASTM D648
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	154	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	113	°C	ISO 75/Af
CTE, 23°C to 60°C, flow	9.3E-05	1/°C	ASTM E831
CTE, 23°C to 60°C, xflow	9.3E-05	1/°C	ASTM E831
CTE, -20°C to 150°C, flow	9.E-05	1/°C	ASTM E831
CTE, 23°C to 60°C, flow	9.3E-05	1/°C	ISO 11359-2
CTE, 23°C to 60°C, xflow	9.3E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate A/50	232	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	200	°C	ASTM D1525
Vicat Softening Temp, Rate A/50	235	°C	ISO 306
Vicat Softening Temp, Rate B/50	166	°C	ISO 306
Relative Temp Index, Elec [2]	50	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	50	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	50	°C	UL 746B
PHYSICAL [1]			
Specific Gravity	1.08	-	ASTM D792
Density	1.09	g/cm³	ISO 1183
Melt Flow Rate, 280°C/2.16 kgf	3.4	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 280°C/2.16 kg	5.4	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 280°C/5.0 kg	12	cm³/10 min	ISO 1133
Water Absorption, (23°C/24hrs)	0.73	%	ASTM D570
Water Absorption, (23°C/Saturated)	2.81	%	ASTM D570
Water Absorption, (23°C/24hrs)	0.73	%	ISO 62-1
Water Absorption, (23°C/saturated)	2.02	%	ISO 62-1
Moisture Absorption, (23°C/50% RH/24hrs)	0.20	%	ISO 62-4
Moisture Absorption, (23°C/50% RH/Equilibrium)	0.57	%	ISO 62-4
Mold Shrink, flow, annealed 130C 1hr [3]	1.1 – 1.5	%	ASTM D955
Mold Shrinkage, flow, 3.2 mm [3]	0.9 – 1.2	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm [3]	0.8 – 1.1	%	SABIC method
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E121562-220764	-	-

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
UL Yellow Card Link 2	E207780-104500012	-	-
UL Recognized, 94HB Flame Class Rating	≥1.5	mm	UL 94
INJECTION MOLDING [4] [5] [6] [7] [8] [9] [10] [11]			
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	275 – 300	°C	
Nozzle Temperature	275 – 300	°C	
Front - Zone 3 Temperature	270 – 300	°C	
Middle - Zone 2 Temperature	265 – 300	°C	
Rear - Zone 1 Temperature	260 – 300	°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) 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.
(3) 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.
(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.
(5) Do NOT mix NORYL GTX* resin with other grades of NORYL* resins.
(6) Polystyrene and acrylic regrind are effective purging Materials. Use temperature range appropriate for particular purging resin.
(7) Regrind must also be dried. Maximum 25% regrind.
(8) 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:\n4-8 hrs at 95°C (200°F), 10 hrs max\n6-12 hrs at 80°C (175°F), 16 hrs max\n8-16 hrs at 65°C (150°F), 24 hrs max\nAVOID air circulating tray ovens. Moisture levels in heated ambient air can exceed moisture level in the resin itself, causing moisture ABSORPTION not drying.
(9) Avoid melt temperature in excess of 300°C (575°F) and residence times over 6-8 minutes (may affect properties and/or appearance).
(10) Nozzle temperature controls assist in elimination of drool premature freeze-off.
(11) Shot sizes in excess of 50% barrel capacity can lead to difficulties in providing a consistent, homogenous plastic melt.

DISCLAIMER