NORYL GTX™ Resin GTX810

REGION AMERICAS

DESCRIPTION

NORYL GTX810 resin is a 10% glass fiber reinforced alloy of Polyphenylene Ether (PPE) + Polyamide (PA). This injection moldable grade has high stiffness (flexural modulus 3000 MPa), excellent chemical resistance, and high heat resistance. NORYL GTX810 resin is an excellent candidate for a wide variety of applications including automotive under the hood, electrical and lighting components, security (CCTV) housings.

GENERAL INFORMATION	
Features	Chemical Resistance, Hydrolytic Stability, Low Warpage, Low Moisture Absorption, Low Specific Gravity, Dimensional stability, High stiffness/Strength, High temperature resistance, No PFAS intentionally added
Fillers	Glass Fiber (Total fluorine >50ppm only from inorganic fluorine)
Polymer Types	Polyphenylene Ether + PA (PPE+Nylon)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Automotive	Automotive Under the Hood, Automotive Lighting
Electrical and Electronics	Electronic Components, Mobile Phone - Computer - Tablets, Lighting
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20241015

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Modulus, 1 mm/min	4200	MPa	ISO 527
Tensile Stress, yield, 5 mm/min	102	MPa	ISO 527
Tensile Stress, break, 5 mm/min	95	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	3.9	%	ISO 527
Tensile Strain, break, 5 mm/min	5.2	%	ISO 527
Flexural Modulus, 2 mm/min	3900	MPa	ISO 178
Flexural Stress, yield, 2 mm/min	165	MPa	ISO 178
Flexural Stress, break, 2 mm/min	163	MPa	ISO 178
Tensile Modulus, 5 mm/min	4050	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	5.5	%	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	4.0	%	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	91	MPa	ASTM D638
Tensile Stress, yld, Type I, 5 mm/min	96	MPa	ASTM D638
Flexural Modulus, 1.3 mm/min, 50 mm span	3950	MPa	ASTM D790
Flexural Stress, yld, 1.3 mm/min, 50 mm span	158	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	3960	MPa	ASTM D790
Flexural Stress, yld, 2.6 mm/min, 100 mm span	155	MPa	ASTM D790
Hardness, Rockwell R	119	-	ASTM D785
IMPACT [1]			
Izod Impact, notched 80*10*4 +23°C	6.8	kJ/m²	ISO 180/1A

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, unnotched 80*10*4 +23°C	85	kJ/m²	ISO 180/1U
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	6.5	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	60	kJ/m²	ISO 179/1eU
Izod Impact, unnotched, 23°C	740	J/m	ASTM D4812
Izod Impact, notched, 23°C	80	J/m	ASTM D256
Izod Impact, notched, -30°C	53	J/m	ASTM D256
THERMAL [1]			
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	241	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	192	°C	ISO 75/Af
Vicat Softening Temp, Rate A/50	250	°C	ISO 306
Vicat Softening Temp, Rate B/50	221	°C	ISO 306
CTE, 23°C to 60°C, flow	4.4E-05	1/°C	ISO 11359-2
CTE, 23°C to 60°C, xflow	8.7E-05	1/°C	ISO 11359-2
HDT, 0.45 MPa, 3.2 mm, unannealed	239	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	201	°C	ASTM D648
HDT, 0.45 MPa, 6.4 mm, unannealed	245	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	210	°C	ASTM D648
Vicat Softening Temp, Rate B/50	221	°C	ASTM D1525
CTE, 23°C to 60°C, flow	4.4E-05	1/°C	ASTM E831
CTE, 23°C to 60°C, xflow	8.7E-05	1/°C	ASTM E831
CTE, -20°C to 150°C, flow	3.9E-05 – 5.0E-05	1/°C	ASTM E831
PHYSICAL [1]			
Density	1.18	g/cm³	ISO 1183
Moisture Absorption, (23°C/50% RH/24hrs)	0.19	%	ISO 62-4
Moisture Absorption, (23°C/50% RH/Equilibrium)	0.56	%	ISO 62-4
Water Absorption, (23°C/24hrs)	0.77	%	ISO 62-1
Water Absorption, (23°C/saturated)	2.12	%	ISO 62-1
Melt Volume Rate, MVR at 280°C/5.0 kg	11	cm³/10 min	ISO 1133
Mold Shrinkage, flow, 24 hrs [2]	0.66	%	ISO 294
Mold Shrinkage, xflow, 24 hrs [2]	0.99	%	ISO 294
Specific Gravity	1.16	-	ASTM D792
Density	1.162	g/cm³	ASTM D792
Water Absorption, (23°C/24hrs)	0.77	%	ASTM D570
Water Absorption, (23°C/Saturated)	2.12	%	ASTM D570
Melt Flow Rate, 280°C/5.0 kgf	12	g/10 min	ASTM D1238
Mold Shrinkage, flow, 24 hrs [2]	0.66	%	ASTM D955
Mold Shrinkage, xflow, 24 hrs [2]	0.99	%	ASTM D955
Mold Shrinkage, flow, 3.2 mm [2]	0.6 – 0.8	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm [2]	0.7 – 1.0	%	SABIC method
ELECTRICAL [1]			
High Voltage Arc Track Rate {PLC}	3	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 0	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 0	≥1.5	mm	UL 746A
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D495

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
FLAME CHARACTERISTICS [3]			
UL Yellow Card Link	E121562-101009449	-	-
UL Recognized, 94HB Flame Class Rating	≥1.5	mm	UL 94
INJECTION MOLDING [4]			
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	280 – 305	°C	
Nozzle Temperature	280 – 305	°C	
Front - Zone 3 Temperature	275 – 305	°C	
Middle - Zone 2 Temperature	270 – 305	°C	
Rear - Zone 1 Temperature	265 – 305	°C	
Mold Temperature	75 – 120	°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) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses, colors and regions. 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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