NORYL GTX™ Resin GTX820

REGION AMERICAS

DESCRIPTION

NORYL GTX820 resin is a 20% glass fiber reinforced alloy of Polyphenylene Ether (PPE) + Polyamide (PA). This injection moldable grade has high stiffness (flexural modulus 4000 MPa), excellent chemical resistance, and high heat resistance. NORYL GTX820 resin is an excellent candidate for a wide variety of applications including valves for water management.

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
Building and Construction	Water Management
Electrical and Electronics	Electronic Components
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20241015

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, brk, Type I, 5 mm/min	133	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	3.6	%	ASTM D638
Tensile Modulus, 5 mm/min	6350	MPa	ASTM D638
Flexural Stress, brk, 1.3 mm/min, 50 mm span	210	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	6030	MPa	ASTM D790
Flexural Stress, yld, 2.6 mm/min, 100 mm span	194	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	5960	MPa	ASTM D790
Hardness, Rockwell R	119	-	ASTM D785
Tensile Stress, break, 5 mm/min	139	MPa	ISO 527
Tensile Strain, break, 5 mm/min	3.6	%	ISO 527
Tensile Modulus, 1 mm/min	6400	MPa	ISO 527
Flexural Stress, break, 2 mm/min	217	MPa	ISO 178
Flexural Modulus, 2 mm/min	5960	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	93	J/m	ASTM D256
Izod Impact, unnotched, 23°C	900	J/m	ASTM D4812
Izod Impact, notched, -30°C	53	J/m	ASTM D256
Izod Impact, notched 80*10*4 +23°C	8.8	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*4 +23°C	86	kJ/m²	ISO 180/1U

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, unnotched 80*10*4 -30°C	40	kJ/m²	ISO 180/1U
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	8.7	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	62	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	40	kJ/m²	ISO 179/1eU
THERMAL (1)			
HDT, 1.82 MPa, 6.4 mm, unannealed	232	°C	ASTM D648
HDT, 0.45 MPa, 6.4 mm, unannealed	254	°C	ASTM D648
Vicat Softening Temp, Rate B/50	231	°C	ASTM D1525
CTE, 23°C to 60°C, flow	2.7E-05	1/°C	ASTM E831
CTE, 23°C to 60°C, xflow	7.8E-05	1/°C	ASTM E831
CTE, -20°C to 150°C, flow	3.1E-05 – 4.0E-05	1/°C	ASTM E831
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	211	°C	ISO 75/Af
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	248	°C	ISO 75/Bf
Vicat Softening Temp, Rate A/50	252	°C	ISO 306
Vicat Softening Temp, Rate B/50	229	°C	ISO 306
CTE, 23°C to 60°C, flow	2.7E-05	1/°C	ISO 11359-2
CTE, 23°C to 60°C, xflow	7.8E-05	1/°C	ISO 11359-2
PHYSICAL (1)			
Specific Gravity	1.24	-	ASTM D792
Density	1.24	g/cm³	ASTM D792
Water Absorption, (23°C/24hrs)	0.70	%	ASTM D570
Water Absorption, (23°C/Saturated)	1.88	%	ASTM D570
Melt Flow Rate, 280°C/5.0 kgf	7.0	g/10 min	ASTM D1238
Mold Shrinkage, flow, 24 hrs (2)	0.27	%	ASTM D955
Mold Shrinkage, xflow, 24 hrs (2)	0.93	%	ASTM D955
Mold Shrinkage, flow, 3.2 mm (2)	0.4 – 0.6	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm (2)	0.65 – 0.85	%	SABIC method
Density	1.25	g/cm³	ISO 1183
Moisture Absorption, (23°C/50% RH/24hrs)	0.17	%	ISO 62-4
Moisture Absorption, (23°C/50% RH/Equilibrium)	0.49	%	ISO 62-4
Water Absorption, (23°C/24hrs)	0.70	%	ISO 62-1
Water Absorption, (23°C/saturated)	1.88	%	ISO 62-1
Melt Volume Rate, MVR at 280°C/5.0 kg	7.1	cm³/10 min	ISO 1133
Mold Shrinkage, flow, 24 hrs (2)	0.27	%	ISO 294
Mold Shrinkage, xflow, 24 hrs (2)	0.93	%	ISO 294
INJECTION MOLDING (3)			
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	

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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) 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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