NORYL GTX™ RESIN GTX840

REGION AMERICAS

DESCRIPTION

NORYL GTX840 resin is a 40% glass fiber reinforced alloy of Polyphenylene Ether (PPE) + Polyamide (PA). This injection moldable grade has high stiffness (flexural modulus 11860 MPa), excellent chemical resistance, and high heat resistance. NORYL GTX GTX840 resin is an excellent candidate for a wide variety of applications including automotive under-the-hood and 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
Polymer Types	Polyphenylene Ether + PA (PPE+Nylon)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Automotive	Automotive EV Batteries, 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 Modulus, 1 mm/min	12570	MPa	ISO 527
Tensile Stress, break, 5 mm/min	200	MPa	ISO 527
Tensile Strain, break, 5 mm/min	2.4	%	ISO 527
Flexural Modulus, 2 mm/min	11730	MPa	ISO 178
Flexural Stress, break, 2 mm/min	306	MPa	ISO 178
Tensile Modulus, 5 mm/min	13020	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	201	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	2.2	%	ASTM D638
Flexural Modulus, 1.3 mm/min, 50 mm span	11800	MPa	ASTM D790
Flexural Stress, brk, 1.3 mm/min, 50 mm span	290	MPa	ASTM D790
Hardness, Rockwell R	108	-	ASTM D785
IMPACT [1]			
Izod Impact, notched 80*10*4 +23°C	11	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	11	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*4 +23°C	70	kJ/m²	ISO 180/1U
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	11	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	72	kJ/m²	ISO 179/1eU
Izod Impact, notched, 23°C	114	J/m	ASTM D256
Izod Impact, notched, -30°C	90	J/m	ASTM D256

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, unnotched, 23°C	1040	J/m	ASTM D4812
THERMAL [1]			
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	259	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	244	°C	ISO 75/Af
Vicat Softening Temp, Rate A/50	257	°C	ISO 306
Vicat Softening Temp, Rate B/50	248	°C	ISO 306
CTE, 23°C to 60°C, flow	1.7E-05	1/°C	ISO 11359-2
CTE, 23°C to 60°C, xflow	7.0E-05	1/°C	ISO 11359-2
HDT, 0.45 MPa, 6.4 mm, unannealed	259	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	245	°C	ASTM D648
Vicat Softening Temp, Rate B/50	247	°C	ASTM D1525
CTE, 23°C to 60°C, flow	1.7E-05	1/°C	ASTM E831
CTE, 23°C to 60°C, xflow	7.0E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	1.6E-05 – 2.0E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	9.0E-05 – 9.4E-05	1/°C	ASTM E831
PHYSICAL [1]			
Density	1.45	g/cm³	ISO 1183
Moisture Absorption, (23°C/50% RH/24hrs)	0.13	%	ISO 62-4
Moisture Absorption, (23°C/50% RH/Equilibrium)	0.38	%	ISO 62-4
Water Absorption, (23°C/24hrs)	0.63	%	ISO 62-1
Water Absorption, (23°C/saturated)	1.64	%	ISO 62-1
Mold Shrinkage, flow, 24 hrs [2]	0.17	%	ISO 294
Mold Shrinkage, xflow, 24 hrs [2]	0.99	%	ISO 294
Melt Volume Rate, MVR at 220°C/5.0 kg	13	cm³/10 min	ISO 1133
Specific Gravity	1.45	-	ASTM D792
Water Absorption, (23°C/Saturated)	1.64	%	ASTM D570
Water Absorption, (23°C/24hrs)	0.63	%	ASTM D570
Melt Flow Rate, 280°C/5.0 kgf	15	g/10 min	ASTM D1238
Mold Shrinkage, flow, 24 hrs [2]	0.17	%	ASTM D955
Mold Shrinkage, xflow, 24 hrs [2]	0.99	%	ASTM D955
Mold Shrinkage, flow, 3.2 mm [2]	0.24 – 0.27	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm [2]	0.6 – 0.63	%	SABIC method
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	295 – 315	°C	
Nozzle Temperature	295 – 315	°C	
Front - Zone 3 Temperature	290 – 315	°C	
Middle - Zone 2 Temperature	280 – 315	°C	
Rear - Zone 1 Temperature	275 – 315	°C	
Mold Temperature	75 – 120	°C	
Back Pressure	0.3 – 1.4	MPa	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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.

DISCLAIMER