NORYL GTX™ RESIN NX0031

REGION AMERICAS

DESCRIPTION

NORYL GTX NX0031 resin is a non-reinforced alloy of Polyphenylene Ether (PPE) + Polyamide (PA). This conductive, injection moldable grade exhibits high heat resistance, excellent chemical resistance, and high impact resistance. This grade carries a UL94 flame rating of HB at 1.5mm along with a UL746C Outdoor Suitability rating of F1. NORYL NX0031 resin was designed for electrostatic painting and powder coating without the need for a conductive primer. This material can also be solvent painted and is an excellent for candidate for exterior, painted applications such as trim and fairings for outdoor vehicles, motorcycle, heavy truck, bus, personal watercraft, and marine. It is available only in black.

GENERAL INFORMATION	
Features	Chemical Resistance, Electrically Conductive, Heat Stabilized, Hydrolytic Stability, Low Warpage, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Aesthetics/Visual effects, Dimensional stability, High stiffness/Strength, High temperature resistance, Impact resistant, No PFAS intentionally added
Fillers	Conductive agent
Polymer Types	Polyphenylene Ether + PA (PPE+Nylon)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Automotive	Heavy Truck, Bus, Automotive Exteriors, Recreational/Specialty Vehicles
Building and Construction	Building Component
Consumer	Home Decoration, Personal Recreation

TYPICAL PROPERTY VALUES

Revision 20241014

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	52	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	48	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	34	%	ASTM D638
Tensile Modulus, 5 mm/min	2250	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	79	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2100	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	50	MPa	ISO 527
Tensile Stress, break, 50 mm/min	48	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4	%	ISO 527
Tensile Strain, break, 50 mm/min	30	%	ISO 527
Tensile Modulus, 1 mm/min	2000	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	75	MPa	ISO 178
Flexural Modulus, 2 mm/min	1900	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	224	J/m	ASTM D256
Izod Impact, notched, -30°C	117	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	42	J	ASTM D3763

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched 80*10*4 +23°C	20	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	10	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	18	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	10	kJ/m²	ISO 179/1eA
THERMAL [1]			
Vicat Softening Temp, Rate B/50	175	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	176	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	136	°C	ASTM D648
CTE, -40°C to 40°C, flow	1.E-04	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	1.E-04	1/°C	ASTM E831
CTE, 23°C to 60°C, flow	1.E-04	1/°C	ISO 11359-2
CTE, 23°C to 60°C, xflow	9.E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	175	°C	ISO 306
Vicat Softening Temp, Rate B/120	180	°C	ISO 306
PHYSICAL [1]			
Specific Gravity	1.09	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm [2]	1.3 – 1.6	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	8	g/10 min	ASTM D1238
Density	1.09	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	4.2	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	1.2	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	8	cm³/10 min	ISO 1133
FLAME CHARACTERISTICS [3]			
UL Yellow Card Link	E121562-533883	-	-
UL Recognized, 94HB Flame Class Rating	≥1.5	mm	UL 94
UV-light, water exposure/immersion	F1	-	UL 746C
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	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) 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.

DISCLAIMER