NORYL GTX™ RESIN LMX310

DESCRIPTION

NORYL GTX LMX310 resin is a low CO2 footprint, conductive, non-reinforced alloy of Polyphenylene Ether (PPE) + Polybutylene Terephthalate (PBT). This injection moldable grade is optimized for primer-less electrostatic painting. NORYL GTX LMX310 resin exhibits high heat performance, low moisture uptake and low warpage. This material is a suitable material for automotive applications such as body panels, service flaps, fenders, trunk lid, and exterior trim.

GENERAL INFORMATION	
Features	Electrically Conductive, Low Warpage, Low Moisture Absorption
Fillers	Conductive agent
Polymer Types	Polyphenylene Ether + PBT (PPE+PBT)
Processing Techniques	Injection Molding

TYPICAL PROPERTY VALUES

Revision 20240507

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Modulus, 1 mm/min	2110	MPa	ISO 527
Tensile Stress, yield, 50 mm/min	49	MPa	ISO 527
Tensile Stress, break, 50 mm/min	45	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	5	%	ISO 527
Tensile Nominal Strain, break, 50 mm/min	20	%	ISO 527
Flexural Modulus, 2 mm/min	2090	MPa	ISO 178
Flexural Strength, 2 mm/min	75	MPa	ISO 178
Tensile Modulus, 50 mm/min	2110	MPa	ASTM D638
Tensile Stress, yld, Type I, 50 mm/min	50	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	46	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5	%	ASTM D638
Tensile Nominal Strain, brk, Type I, 50 mm/min	20	%	ASTM D638
Flexural Modulus, 1.3 mm/min, 50 mm span	2210	MPa	ASTM D790
IMPACT [1]			
Izod Impact, notched 80*10*4 +23°C	11	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*4 +23°C	132	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*4 -30°C	6	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*4 -30°C	35	kJ/m²	ISO 180/1U
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	100	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	46	kJ/m²	ISO 179/1eU
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	10	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	7	kJ/m²	ISO 179/1eA
Izod Impact, notched, 23°C	112	J/m	ASTM D256
Izod Impact, notched, -30°C	106	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	12	J	ASTM D3763
THERMAL [1]			
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	102	°C	ISO 75/Af

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	164	°C	ISO 75/Bf
HDT, 1.82 MPa, 3.2 mm	106	°C	ASTM D648
HDT, 0.45 MPa, 3.2 mm	178	°C	ASTM D648
Vicat Softening Temp, Rate B/50	168	°C	ISO 306
Vicat Softening Temp, Rate B/120	169	°C	ISO 306
Vicat Softening Temp, Rate B/50	168	°C	ASTM D1525
Vicat Softening Temp, Rate B/120	169	°C	ASTM D1525
CTE, 23°C to 60°C, flow	12.5E-05	1/°C	ISO 11359-2
CTE, 23°C to 60°C, xflow	12.6E-05	1/°C	ISO 11359-2
CTE, 23°C to 60°C, flow	12.5E-05	1/°C	ASTM E831
CTE, 23°C to 60°C, xflow	12.6E-05	1/°C	ASTM E831
PHYSICAL (1)			
Density	1.19	g/cm³	ISO 1183
Specific Gravity	1.19	-	ASTM D792
Melt Volume Rate, MVR at 260°C/5.0 kg	15	cm³/10 min	ISO 1133
Melt Flow Rate, 260°C/5.0 kgf	17	g/10 min	ASTM D1238
Moisture Absorption, (23°C/50% RH/24hrs)	0	%	ISO 62-4
Moisture Absorption, (23°C/50% RH/Equilibrium)	0.03	%	ISO 62-4
Water Absorption, (23°C/24hrs)	0.10	%	ISO 62-1
Water Absorption, (23°C/saturated)	0.27	%	ISO 62-1
Mold Shrinkage, flow (2)	2.10 – 2.20	%	SABIC method
Mold Shrinkage, xflow (2)	2.05 – 2.15	%	SABIC method
Mold Shrinkage, flow (3)	1.65 - 1.85	%	SABIC method
ELECTRICAL (1)			
Volume Resistivity	1.E+03 – 1.E+04	Ω.cm	SABIC method
INJECTION MOLDING (4)			
Drying Temperature	100 – 120	°C	
Drying Time	2 – 4	Hrs	
Maximum Moisture Content	0.07	%	
Hopper Temperature	60 – 80	°C	
Melt Temperature	260 – 280	°C	
Rear - Zone 1 Temperature	230 – 240	°C	
Middle - Zone 2 Temperature	250 – 260	°C	
Front - Zone 3 Temperature	270 – 280	°C	
Nozzle Temperature	270 – 280	°C	
Mold Temperature	90 – 100	°C	

(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) After heat treatment (165°C for 30 min)

(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.

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