

NORYL GTX™ RESIN GTX4610

REGION EUROPE

DESCRIPTION

NORYL GTX4610 resin is a 10% glass fiber reinforced alloy of Polyphenylene Ether (PPE) + Polyamide (PA). This high performance injection moldable grade has a UL 5VA flame rating, non-brominated / non-chlorinated FR package, UL746C Outdoor Suitability rating of F1, excellent chemical resistance, high heat resistance, and flow. NORYL GTX4610 resin is an excellent candidate for a wide variety of electrical applications including connectors, sockets, sensors, terminal blocks, and insulator components.

GENERAL INFORMATION

Features

Flame Retardant, Chemical Resistance, Good Processability, Hydrolytic Stability, Low Warpage, Low Moisture Absorption, Low Specific Gravity, Non halogenated flame retardant, 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 Under the Hood

Building and Construction

Building Component

Electrical and Electronics

Electronic Components

Industrial

Electrical

TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES

TYPICAL VALUES

UNITS

TEST METHODS

MECHANICAL ⁽¹⁾

Tensile Stress, yld, Type I, 5 mm/min

88

MPa

ASTM D638

Tensile Stress, brk, Type I, 5 mm/min

88

MPa

ASTM D638

Tensile Strain, yld, Type I, 5 mm/min

3

%

ASTM D638

Tensile Strain, brk, Type I, 5 mm/min

3

%

ASTM D638

Tensile Modulus, 5 mm/min

5000

MPa

ASTM D638

Flexural Stress, yld, 1.3 mm/min, 50 mm span

145

MPa

ASTM D790

Flexural Modulus, 1.3 mm/min, 50 mm span

4600

MPa

ASTM D790

Tensile Stress, yield, 5 mm/min

88

MPa

ISO 527

Tensile Stress, break, 5 mm/min

88

MPa

ISO 527

Tensile Strain, yield, 5 mm/min

3

%

ISO 527

Tensile Strain, break, 5 mm/min

3

%

ISO 527

Tensile Modulus, 1 mm/min

5000

MPa

ISO 527

Flexural Stress, yield, 2 mm/min

145

MPa

ISO 178

Flexural Modulus, 2 mm/min

4600

MPa

ISO 178

IMPACT ⁽¹⁾

Izod Impact, notched, 23°C

80

J/m

ASTM D256

Izod Impact, notched, -30°C

65

J/m

ASTM D256

Instrumented Dart Impact Total Energy, 23°C

12

J

ASTM D3763

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CHEMISTRY THAT MATTERS™

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched 80*10*4 +23°C	5	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	5	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	5	kJ/m ²	ISO 179/1eA
THERMAL ⁽¹⁾			
Vicat Softening Temp, Rate B/50	218	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	220	°C	ASTM D648
CTE, -40°C to 40°C, flow	4.1E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	7.4E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	4.1E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	7.4E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	218	°C	ISO 306
Vicat Softening Temp, Rate B/120	220	°C	ISO 306
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	224	°C	ISO 75/Bf
PHYSICAL ⁽¹⁾			
Specific Gravity	1.21	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm ⁽²⁾	0.88 – 0.94	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm ⁽²⁾	0.95 – 1.01	%	SABIC method
Melt Flow Rate, 300°C/5.0 kgf	18	g/10 min	ASTM D1238
Density	1.21	g/cm ³	ISO 1183
Water Absorption, (23°C/saturated)	3.8	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.5	%	ISO 62
Melt Volume Rate, MVR at 300°C/5.0 kg	15	cm ³ /10 min	ISO 1133
ELECTRICAL ⁽¹⁾			
Volume Resistivity	1.E+16	Ω.cm	ASTM D257
Dielectric Strength, in air, 1.6 mm	23.2	kV/mm	ASTM D149
Dielectric Strength, in oil, 1.6 mm	24.4	kV/mm	ASTM D149
Comparative Tracking Index ⁽³⁾	425	V	IEC 60112
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) Value shown here is based on internal measurement.
- (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.

ADDITIONAL PRODUCT NOTES

No PFAS intentionally added: The grade listed in this document does not contain PFAS intentionally added during Seller's manufacturing process and is not expected to contain unintentional PFAS impurities. Each user is responsible for evaluating the presence of unintentional PFAS impurities.

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