NORYL GTX™ Resin 9F0051XT

DESCRIPTION

NORYL GTX 9F0051XT resin is a 25% glass fiber reinforced polyamide-based compound, with high modulus, high strength, high heat resistance and good dimensional stability with low CTE. This injection moldable grade contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of V0 at ≥ 1.5mm and 5VB at ≥ 2.0mm. The target application is various industrial and automotive electric components, including connector, sensor, EV battery module and busbar insulator.

GENERAL INFORMATION	
Features	Chemical Resistance, Low Warpage, Non halogenated flame retardant, 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 EV Batteries
Hydrocarbon and Energy	Energy Storage
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20260202

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 5 mm/min	132	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	2.7	%	ASTM D638
Tensile Modulus, 5 mm/min	9400	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	196	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	8240	MPa	ASTM D790
Tensile Stress, break, 5 mm/min	131	MPa	ISO 527
Tensile Strain, break, 5 mm/min	2.9	%	ISO 527
Tensile Modulus, 1 mm/min	9412	MPa	ISO 527
Flexural Strength, 2 mm/min	186	MPa	ISO 178
Flexural Modulus, 2 mm/min	7727	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	74	J/m	ASTM D256
Izod Impact, unnotched, 23°C	605	J/m	ASTM D4812
Izod Impact, notched 80*10*4 +23°C	7.7	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*4 +23°C	38	kJ/m²	ISO 180/1U
THERMAL [1]			
HDT, 0.45 MPa, 3.2 mm, unannealed	254	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	238	°C	ASTM D648
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	253	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	239	°C	ISO 75/Af

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
CTE, -40°C to 40°C, flow	2.7E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	7.5E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	2.6E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	7.4E-05	1/°C	ISO 11359-2
Relative Temp Index, Elec [2]	65	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	65	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	65	°C	UL 746B
PHYSICAL [1]			
Density	1.35	g/cm³	ISO 1183
Melt Flow Rate, 280°C/5.0 kgf	20	g/10 min	ASTM D1238
Melt Flow Rate, 300°C/5.0 kgf	33	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 280°C/5.0 kg	17.6	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 300°C/5.0 kg	33	cm³/10 min	ISO 1133
Water Absorption, 23°C/24hrs	0.59	%	SABIC method
Moisture Absorption, (23°C/50% RH/24 hrs)	0.16	%	ASTM D570
Moisture Absorption, (23°C/50% RH/24hrs)	0.15	%	ISO 62-4
Mold Shrinkage, flow [3]	0.5	%	SABIC method
Mold Shrinkage, xflow [3]	0.7	%	SABIC method
ELECTRICAL [1]			
Volume Resistivity	1.4E+15	Ω.cm	ASTM D257
Surface Resistivity	4.3E+15	Ω	ASTM D257
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E207780-104748331	-	-
UL Recognized, 94V-0 Flame Class Rating	≥1.5	mm	UL 94
UL Recognized, 94-5VB Flame Class Rating	≥2.0	mm	UL 94
INJECTION MOLDING [4]			
Drying Temperature	100 – 120	°C	
Drying Time	3 – 5	Hrs	
Maximum Moisture Content	0.05 – 0.1	%	
Melt Temperature	260 – 320	°C	
Nozzle Temperature	250 – 320	°C	
Front - Zone 3 Temperature	260 – 320	°C	
Middle - Zone 2 Temperature	260 – 320	°C	
Rear - Zone 1 Temperature	260 – 320	°C	
Mold Temperature	75 – 150	°C	
Back Pressure	0.2 – 1.6	MPa	
Screw Speed	20 – 100	rpm	
Shot to Cylinder Size	20 – 60	%	
Vent Depth	0.013 – 0.045	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) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.

(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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