

# NORYL GTX™ RESIN GTX678

REGION ASIA

## DESCRIPTION

NORYL GTX678 resin is a high performance blend of PPE/PA that exhibits an excellent balance on non-halogenated flame retardance, conductivity, ductility, and high-heat resistance. This grade can be electro-statically painted or powder coated without the need for a conductive primer.

## TYPICAL PROPERTY VALUES

Revision 20180905

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 50 mm/min	58	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	52	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	7	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	12	%	ASTM D 638
Tensile Modulus, 5 mm/min	2900	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	95	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2600	MPa	ASTM D 790
Tensile Stress, yield, 50 mm/min	58	MPa	ISO 527
Tensile Stress, break, 50 mm/min	52	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	7	%	ISO 527
Tensile Strain, break, 50 mm/min	12	%	ISO 527
Tensile Modulus, 1 mm/min	2900	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	95	MPa	ISO 178
Flexural Modulus, 2 mm/min	2600	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, notched, 23°C	100	J/m	ASTM D 256
Izod Impact, notched, -30°C	70	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	60	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	10	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	7	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	12	kJ/m <sup>2</sup>	ISO 179/1eA
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	198	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	195	°C	ASTM D 648
CTE, -40°C to 40°C, flow	7.8E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	8.E-05	1/°C	ASTM E 831
Specific Heat	1.4	J/g-°C	ASTM C 351
Thermal Conductivity	0.2	W/m-°C	ASTM C177
CTE, 23°C to 60°C, flow	8.3E-05	1/°C	ISO 11359-2
CTE, 23°C to 60°C, xflow	8.5E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASS	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	197	°C	ISO 306
Vicat Softening Temp, Rate B/120	195	°C	ISO 306
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	191	°C	ISO 75/Bf

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<b>PHYSICAL</b>			
Specific Gravity	1.12	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	1.3 – 1.5	%	SABIC method
Melt Flow Rate, 300°C/5.0 kgf	7.8	g/10 min	ASTM D 1238
Density	1.12	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	4	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.5	%	ISO 62
Melt Volume Rate, MVR at 300°C/5.0 kg	7	cm <sup>3</sup> /10 min	ISO 1133
<b>ELECTRICAL</b>			
Volume Resistivity	4.E+03	Ohm-cm	ASTM D 257
<b>FLAME CHARACTERISTICS</b>			
UL Compliant, 94V-1 Flame Class Rating	1.5	mm	UL 94 by SABIC-IP
UL Compliant, 94V-0 Flame Class Rating	2	mm	UL 94 by SABIC-IP
UL Compliant, 94-5VA Rating	2	mm	UL 94 by SABIC-IP
UL Compliant, 94-5VB Rating	2	mm	UL 94 by SABIC-IP
Glow Wire Flammability Index 960°C, passes at	2	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	800	°C	IEC 60695-2-13
<b>INJECTION MOLDING</b>			
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	275 – 300	°C	
Nozzle Temperature	275 – 300	°C	
Front - Zone 3 Temperature	270 – 300	°C	
Middle - Zone 2 Temperature	265 – 300	°C	
Rear - Zone 1 Temperature	260 – 300	°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	
<b>PROFILE EXTRUSION</b>			
Drying Temperature	105 – 110	°C	
Drying Time	8	hrs	
Drying Time (Cumulative)	24	hrs	
Maximum Moisture Content	0.03	%	
Melt Temperature	245 – 260	°C	
Barrel - Zone 1 Temperature	245 – 260	°C	
Barrel - Zone 2 Temperature	245 – 260	°C	
Barrel - Zone 3 Temperature	245 – 260	°C	
Barrel - Zone 4 Temperature	245 – 260	°C	
Adapter Temperature	245 – 260	°C	
Die Temperature	245 – 260	°C	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Calibrator Temperature	35 – 75	°C	
Water Bath Temperature	40 - 50	°C	

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