



NORYL GTX™ Resin GTX678

Americas: COMMERCIAL

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 PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 50 mm/min	590	kgf/cm ²	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	530	kgf/cm ²	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	29500	kgf/cm ²	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	960	kgf/cm ²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	26500	kgf/cm ²	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
IMPACT			
Izod Impact, notched, 23°C	10	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	7	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	611	cm-kgf	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	10	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	7	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	12	kJ/m ²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	198	°C	ASTM D 1525



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THERMAL			
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 C 177
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
PHYSICAL			
Specific Gravity	1.12	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm (5)	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 ³	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 ³ /10 min	ISO 1133
ELECTRICAL			
Volume Resistivity	4.E+03	Ohm-cm	ASTM D 257
FLAME CHARACTERISTICS			
UL Compliant, 94V-1 Flame Class Rating (3)(4)	1.5	mm	UL 94 by SABIC-IP
UL Compliant, 94V-0 Flame Class Rating (3)(4)	2	mm	UL 94 by SABIC-IP
UL Compliant, 94-5VA Rating (3)(4)	2	mm	UL 94 by SABIC-IP
UL Compliant, 94-5VB Rating (3)(4)	2	mm	UL 94 by SABIC-IP



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TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
FLAME CHARACTERISTICS			
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



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- Do NOT mix NORYL GTX* resin with other grades of NORYL* resins.

PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Injection Molding		
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
Profile Extrusion		
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
Calibrator Temperature	35 - 75	°C

- Polystyrene and acrylic regrind are effective purging Materials. Use temperature range appropriate for particular purging resin.
- Regrind must also be dried. Maximum 25% regrind.



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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Profile Extrusion Water Bath Temperature	40 - 50	°C

- Polystyrene and acrylic regrind are effective purging Materials. Use temperature range appropriate for particular purging resin.
- Regrind must also be dried. Maximum 25% regrind.
- Dry at recommended temperatures and times for optimum performance. Overdrying can cause loss of physical properties and/or create appearance defects. Do not exceed recommended basic drying time and temperature above or:
 - 4-8 hrs at 95°C (200°F), 10 hrs max
 - 6-12 hrs at 80°C (175°F), 16 hrs max
 - 8-16 hrs at 65°C (150°F), 24 hrs max
- AVOID air circulating tray ovens. Moisture levels in heated ambient air can exceed moisture level in the resin itself, causing moisture ABSORPTION not drying.
- Avoid melt temperature in excess of 300°C (575°F) and residence times over 6-8 minutes (may affect properties and/or appearance).
- Nozzle temperature controls assist in elimination of drool premature freeze-off.
- Shot sizes in excess of 50% barrel capacity can lead to difficulties in providing a consistent, homogenous plastic melt.