



NORYL GTX™ Resin GTX4610

Americas: COMMERCIAL

NORYL GTX GTX4610 resin is a high performance, 10% glass filled blend of PPE/PA that exhibits an excellent balance of non-halogenated flame retardance, dimensional stability, high heat resistance, strength, and flow. The material is available in limited colors for injection molding.

TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	890	kgf/cm ²	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	890	kgf/cm ²	ASTM D 638
Tensile Modulus, 5 mm/min	50900	kgf/cm ²	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	1470	kgf/cm ²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	46900	kgf/cm ²	ASTM D 790
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			
Izod Impact, notched, 23°C	8	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	6	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	122	cm-kgf	ASTM D 3763
Izod Impact, notched 80*10*4 +23°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			
Vicat Softening Temp, Rate B/50	218	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	220	°C	ASTM D 648
CTE, -40°C to 40°C, flow	4.1E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	7.4E-05	1/°C	ASTM E 831



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THERMAL			
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			
Specific Gravity	1.21	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm (5)	0.88 - 0.94	%	SABIC Method
Mold Shrinkage, xflow, 3.2 mm (5)	0.95 - 1.01	%	SABIC Method
Melt Flow Rate, 300°C/5.0 kgf	18	g/10 min	ASTM D 1238
Density	1.21	g/cm ³	ISO 1183
Water Absorption, (23°C/sat)	3.8	%	ISO 62
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			
Volume Resistivity	1.E+16	Ohm-cm	ASTM D 257
Dielectric Strength, in air, 1.6 mm	23.2	kV/mm	ASTM D 149
Dielectric Strength, in oil, 1.6 mm	24.4	kV/mm	ASTM D 149
High Ampere Arc Ign, surface {PLC}	0	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	1	PLC Code	UL 746A
Comparative Tracking Index	425	V	IEC 60112
FLAME CHARACTERISTICS			
UL Compliant, 94V-1 Flame Class Rating (3)(4)	0.8	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
Glow Wire Flammability Index 960°C, passes at	2	mm	IEC 60695-2-12



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TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
FLAME CHARACTERISTICS Glow Wire Ignitability Temperature, 1.0 mm	825	°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	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

- 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.