

NORYL GTXTM RESIN GTX973

REGION ASIA

DESCRIPTION

NORYL GTX973 resin is a conductive, non-reinforced alloy of Polyphenylene Ether (PPE) + Polyamide (PA). This injection moldable grade is optimized to allow for in- or on-line primer-less electrostatic and powder coat painting. NORYL GTX973 resin exhibits high impact resistance and strength and is an excellent candidate for automotive painted applications such as body panels, fenders, and tank flaps.

GENERAL INFORMATION	
Features	Chemical Resistance, Electrically Conductive, Hydrolytic Stability, Low Warpage, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Aesthetics/Visual effects, Dimensional stability, High stiffness/Strength, High temperature resistance, Impact resistant, No PFAS intentionally added
Fillers	Conductive agent
Polymer Types	Polyphenylene Ether + PA (PPE+Nylon)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Automotive	Automotive Exteriors

TYPICAL PROPERTY VALUES

Revision 20241014

MECHANICAL (**) MECHANICAL (**) XFM D638 Tensile Stress, yld, Type I, 50 mm/min 55 MPa ASTM D638 Tensile Strain, yld, Type I, 50 mm/min 5 % ASTM D638 Tensile Strain, yld, Type I, 50 mm/min 5 % ASTM D638 Tensile Strain, brk, Type I, 50 mm/min 55 % ASTM D638 Tensile Modulus, 50 mm/min 2200 MPa ASTM D638 Flexural Stress, yld, 1,3 mm/min, 50 mm span 90 MPa ASTM D790 Flexural Modulus, 1,3 mm/min, 50 mm span 90 MPa ASTM D790 Tensile Stress, yled, 50 mm/min 60 MPa S0 527 Tensile Strain, yled, 50 mm/min 40 % S0 527 Tensile Strain, preak, 50 mm/min 30 % S0 527 Tensile Strain, preak, 50 mm/min 30 MPa S0 527 Tensile Strain, preak, 50 mm/min 90 MPa S0 178 Tensile Stress, yled, 2 mm/min 90 MPa S0 178 Tensile Strain, break, 50 mm/min 90 MPa S0 178	PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Tensile Stress, brk, Type I, 50 mm/min 55 MPa ASTM D638 Tensile Strain, yld, Type I, 50 mm/min 5 % ASTM D638 Tensile Strain, brk, Type I, 50 mm/min 55 % ASTM D638 Tensile Modulus, 50 mm/min 2200 MPa ASTM D638 Flexural Stress, yld, 1.3 mm/min, 50 mm span 90 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 2300 MPa ISO 527 Tensile Stress, yield, 50 mm/min 60 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, preak, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2300 MPa ISO 527 Flexural Stress, yield, 2 mm/min 90 MPa ISO 178 Flexural Modulus, 2 mm/min 2300 MPa ISO 178 Impact (1) Impact (1) Impact (1) Impact (1) ISO 178 Impact (1)	MECHANICAL (1)			
Tensile Strain, yld, Type I, 50 mm/min 5 % ASTM D638 Tensile Strain, brk, Type I, 50 mm/min 55 % ASTM D638 Tensile Modulus, 50 mm/min 2200 MPa ASTM D638 Flexural Stress, yld, 1.3 mm/min, 50 mm span 90 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 2300 MPa ASTM D790 Tensile Stress, yield, 50 mm/min 60 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Strain, break, 50 mm/min 2300 MPa ISO 527 Tensile Modulus, 1 mm/min 2300 MPa ISO 178 Flexural Stress, yield, 2 mm/min 90 MPa ISO 178 Flexural Modulus, 2 mm/min 10 MPa SIO 178 IMPACT (1) Impact (1) Impact (1) ASTM D256 Izod Impact, notched, 23°C 130 J/m ASTM D256 Izod Impact, notched, 30°C 10 ASTM D256 Impact (2)	Tensile Stress, yld, Type I, 50 mm/min	60	MPa	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min 55 % ASTM D638 Tensile Modulus, 50 mm/min 2200 MPa ASTM D638 Flexural Stress, yld, 1.3 mm/min, 50 mm span 90 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 2300 MPa ISO 527 Tensile Stress, yield, 50 mm/min 60 MPa ISO 527 Tensile Stress, break, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2300 MPa ISO 527 Flexural Stress, yield, 2 mm/min 90 MPa ISO 178 Flexural Modulus, 2 mm/min 2300 MPa ISO 178 IMPACT ⁽¹⁾ IMPACT ⁽¹⁾ ISO 178 ISO 178 Ikod Impact, notched, 23°C 130 J/m ASTM D256 Ikod Impact, notched, 30°C 80 J/m ASTM D256 Ikot Impact, notched, 80°10°4 + 23°C 50 J/m ASTM D256 Ikot Impact, notched, 80°10°4 + 23°C 15 Ikot Modulus, 10 Ikot MPact	Tensile Stress, brk, Type I, 50 mm/min	55	MPa	ASTM D638
Tensile Modulus, 50 mm/min 2200 MPa ASTM D638 Flexural Stress, yld, 1,3 mm/min, 50 mm span 90 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 2300 MPa ASTM D790 Tensile Stress, yield, 50 mm/min 60 MPa ISO 527 Tensile Stress, break, 50 mm/min 4 % ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Modulus, 1 mm/min 30 % ISO 527 Flexural Stress, yield, 2 mm/min 90 MPa ISO 178 Flexural Modulus, 2 mm/min 90 MPa ISO 178 Flexural Modulus, 2 mm/min 300 MPa ISO 178 Izod Impact, notched, 23°C 130 J/m ASTM D256 Izod Impact, notched, -30°C 80 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched, 80°10°4 + 23°C 15 kJ/m² ISO 180/1A	Tensile Strain, yld, Type I, 50 mm/min	5	%	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span 90 MPa ASTM D790 Flexural Modulus, 1.3 mm/min, 50 mm span 2300 MPa ASTM D790 Tensile Stress, yield, 50 mm/min 60 MPa ISO 527 Tensile Stress, break, 50 mm/min 55 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Modulus, 1 mm/min 2300 MPa ISO 527 Flexural Stress, yield, 2 mm/min 90 MPa ISO 178 Flexural Modulus, 2 mm/min 2300 MPa ISO 178 Impact (1) ASTM D256 Impact (1) Impact	Tensile Strain, brk, Type I, 50 mm/min	55	%	ASTM D638
Flexural Modulus, 1.3 mm/min, 50 mm span 2300 MPa ASTM D790 Tensile Stress, yield, 50 mm/min 60 MPa ISO 527 Tensile Stress, break, 50 mm/min 55 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Modulus, 1 mm/min 30 % ISO 527 Tensile Modulus, 2 mm/min 2300 MPa ISO 178 Flexural Modulus, 2 mm/min 2300 MPa ISO 178 IMPACT (¹) 30 MPa ASTM D256 Izod Impact, notched, 23°C 130 J/m ASTM D256 Izod Impact, notched, -30°C 80 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched, 80°10°4 + 23°C 15 I/m ASTM D3763	Tensile Modulus, 50 mm/min	2200	MPa	ASTM D638
Tensile Stress, yield, 50 mm/min 60 MPa ISO 527 Tensile Stress, break, 50 mm/min 55 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2300 MPa ISO 178 Flexural Stress, yield, 2 mm/min 90 MPa ISO 178 Impact Instrumental Modulus, 2 mm/min 2300 MPa ISO 178 Impact Instrumental Dart Impact, notched, 23°C 130 J/m ASTM D256 Izod Impact, notched, -30°C 80 J/m ASTM D256 Instrumental Dart Impact Total Energy, 23°C 50 KJ/m² ISO 180/1A	Flexural Stress, yld, 1.3 mm/min, 50 mm span	90	MPa	ASTM D790
Tensile Stress, break, 50 mm/min 55 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2300 MPa ISO 178 Flexural Stress, yield, 2 mm/min 2300 MPa ISO 178 IMPACT (1) ISO 178 IMPACT (2004) IMPACT (2004) ASTM D256 Izod Impact, notched, 23°C 80 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched, 80°10°4 + 23°C 15 kl/m² ISO 180/1A	Flexural Modulus, 1.3 mm/min, 50 mm span	2300	MPa	ASTM D790
Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2300 MPa ISO 178 Flexural Stress, yield, 2 mm/min 90 MPa ISO 178 IMPACT (1) 2300 MPa ISO 178 Izod Impact, notched, 23°C 130 J/m ASTM D256 Izod Impact, notched, -30°C 80 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J/m² ASTM D3763 Izod Impact, notched 80*10*4 + 23°C 15 kJ/m² ISO 180/1A	Tensile Stress, yield, 50 mm/min	60	MPa	ISO 527
Tensile Strain, break, 50 mm/min 30 % ISO 527 Tensile Modulus, 1 mm/min 2300 MPa ISO 527 Flexural Stress, yield, 2 mm/min 90 MPa ISO 178 ImpAct (1) 2300 MPa ISO 178 ImpAct (1) J/m ASTM D256 Izod Impact, notched, 23°C 130 J/m ASTM D256 Izod Impact, notched, -30°C 80 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80*10*4 + 23°C 15 kJ/m² ISO 180/1A	Tensile Stress, break, 50 mm/min	55	MPa	ISO 527
Tensile Modulus, 1 mm/min 2300 MPa ISO 527 Flexural Stress, yield, 2 mm/min 90 MPa ISO 178 Flexural Modulus, 2 mm/min 2300 MPa ISO 178 IMPACT (1) Izod Impact, notched, 23°C 130 J/m ASTM D256 Izod Impact, notched, -30°C 80 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80°10°4 + 23°C 15 kJ/m² ISO 180/1A	Tensile Strain, yield, 50 mm/min	4	%	ISO 527
Flexural Stress, yield, 2 mm/min 90 MPa ISO 178 Flexural Modulus, 2 mm/min 2300 MPa ISO 178 IMPACT (¹) Izod Impact, notched, 23°C 130 J/m ASTM D256 Izod Impact, notched, -30°C 80 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80*10*4 + 23°C 15 kJ/m² ISO 180/1A	Tensile Strain, break, 50 mm/min	30	%	ISO 527
Flexural Modulus, 2 mm/min 2300 MPa ISO 178 IMPACT (1) Izod Impact, notched, 23°C 130 J/m ASTM D256 Izod Impact, notched, -30°C 80 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80*10*4 + 23°C 15 kJ/m² ISO 180/1A	Tensile Modulus, 1 mm/min	2300	MPa	ISO 527
IMPACT (1) Izod Impact, notched, 23°C 130 J/m ASTM D256 Izod Impact, notched, -30°C 80 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80°10°4 + 23°C 15 kJ/m² ISO 180/1A	Flexural Stress, yield, 2 mm/min	90	MPa	ISO 178
Izod Impact, notched, 23°C 130 J/m ASTM D256 Izod Impact, notched, -30°C 80 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80*10*4 + 23°C 15 kJ/m² ISO 180/1A	Flexural Modulus, 2 mm/min	2300	MPa	ISO 178
Izod Impact, notched, -30°C 80 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80*10*4 +23°C 15 kJ/m² ISO 180/1A	IMPACT (1)			
Instrumented Dart Impact Total Energy, 23°C 50 J ASTM D3763 Izod Impact, notched 80*10*4 +23°C 15 kJ/m² ISO 180/1A	Izod Impact, notched, 23°C	130	J/m	ASTM D256
Izod Impact, notched 80*10*4 +23°C 15 kJ/m² ISO 180/1A	Izod Impact, notched, -30°C	80	J/m	ASTM D256
	Instrumented Dart Impact Total Energy, 23°C	50	J	ASTM D3763
Izod Impact, notched 80*10*4 - 30°C 7 kJ/m² ISO 180/1A	Izod Impact, notched 80*10*4 +23°C	15	kJ/m²	ISO 180/1A
	Izod Impact, notched 80*10*4 -30°C	7	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm 15 kJ/m² ISO 179/1eA	Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	15	kJ/m²	ISO 179/1eA



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	6	kJ/m²	ISO 179/1eA
THERMAL (1)			
Vicat Softening Temp, Rate B/50	200	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	195	°C	ASTM D648
CTE, -40°C to 40°C, flow	8.5E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	9.E-05	1/°C	ASTM E831
CTE, 23°C to 60°C, flow	9.E-05	1/°C	ISO 11359-2
CTE, 23°C to 60°C, xflow	9.E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	195	°C	ISO 306
Vicat Softening Temp, Rate B/120	200	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	190	°C	ISO 75/Be
PHYSICAL (1)			
Specific Gravity	1.09	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm ⁽²⁾	1.4 – 1.7	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm ⁽²⁾	1.2 – 1.5	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	20	g/10 min	ASTM D1238
Density	1.1	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	4.2	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	1.2	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	12	cm³/10 min	ISO 1133
ELECTRICAL (1)			
Volume Resistivity	1.E+03 – 1.E+04	Ω .cm	SABIC method
INJECTION MOLDING (3)			
Drying Temperature	100 – 120	°C	
Drying Time	2 – 3	Hrs	
Maximum Moisture Content	0.07	%	
Melt Temperature	290 – 320	°C	
Nozzle Temperature	280 – 310	°C	
Front - Zone 3 Temperature	290 – 320	°C	
Middle - Zone 2 Temperature	280 – 300	°C	
Rear - Zone 1 Temperature	260 – 280	°C	
Hopper Temperature	60 – 80	°C	
Mold Temperature	100 – 120	°C	

⁽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.

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⁽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⁾ 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.