

NORYL GTXTM RESIN GTX964W

DESCRIPTION

NORYL GTX964W resin is a non-reinforced alloy of Polyphenylene Ether (PPE) + Polyamide (PA) that exhibits very high impact resistance and high flow. This injection moldable grade was designed for large parts, such as automotive body panels, and thin wall applications

GENERAL INFORMATION	
Features	Chemical Resistance, Hydrolytic Stability, Low Warpage, Low Shrinkage, Low Moisture Absorption, Dimensional stability, High stiffness/Strength, High temperature resistance, Impact resistant, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PA (PPE+Nylon)
Processing Techniques	Injection Molding
INDUSTRY	SUB INDUSTRY
Automotive	Automotive EV Batteries, Automotive Exteriors

TYPICAL PROPERTY VALUES

Revision 20241014

MECHANICAL (**) MPa ASTM D638 Tensile Stress, yld, Type I, 50 mm/min 44 MPa ASTM D638 Tensile Strain, brk, Type I, 50 mm/min 56 % ASTM D638 Flexural Stress, yld, 2.6 mm/min, 100 mm span 73 MPa ASTM D790 Flexural Modulus, 2.6 mm/min, 100 mm span 1830 MPa ASTM D790 Tensile Stress, yield, 50 mm/min 50 MPa ISO 527 Tensile Stress, break, 50 mm/min 4 % ISO 527 Tensile Strain, pleak, 50 mm/min 50 % ISO 527 Tensile Strain, pleak, 50 mm/min 4 % ISO 527 Tensile Strain, pleak, 50 mm/min 70 MPa ISO 178 Flexural Stress, yield, 2 mm/min 70 MPa ISO 178 Flexural Modulus, 2 mm/min 70 MPa ISO 178 Itacural Modulus, 2 mm/min 70 MPa ISO 178 Itacural Modulus, 2 mm/min 180 MPa ISO 178 Itacural Modulus, 2 mm/min 180 MPa ISO 178 Itacural Modulus, 2 m	PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Tensile Strain, brk, Type I, 50 mm/min 56 % A5TM D638 Flexural Stress, yld, 2.6 mm/min, 100 mm span 73 MPa A5TM D790 Flexural Modulus, 2.6 mm/min, 100 mm span 1830 MPa A5TM D790 Tensile Stress, yled, 50 mm/min 50 MPa ISO 527 Tensile Stress, break, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 50 % ISO 527 Tensile Strain, break, 50 mm/min 70 MPa ISO 178 Flexural Modulus, 2 mm/min 70 MPa ISO 178 Flexural Modulus, 2 mm/min 1800 MPa ISO 178 Flexural Modulus, 2 mm/min 528 Jm ASTM D256 Instrumented Dart Impact Total Energy, 23°C 41 Jm ASTM D256 Instrumented Dart Impact Total Energy, 23°C 20 kl/m² ISO 180/13 Izod Impact, notched 80°10°4 + 23°C 20 kl/m² ISO 180/13 Icod Impact, notched 80°10°4 sp=62mm 45 kl/m² ISO 180/13 Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm 20	MECHANICAL (1)			
Flexural Stress, yid, 2.6 mm/min, 100 mm span 73 MPa ASTM D790 Flexural Modulus, 2.6 mm/min, 100 mm span 1830 MPa ASTM D790 Tensile Stress, yield, 50 mm/min 50 MPa ISO 527 Tensile Stress, break, 50 mm/min 4 % ISO 527 Tensile Strain, yield, 50 mm/min 50 % ISO 527 Flexural Stress, yield, 2 mm/min 70 MPa ISO 178 Flexural Modulus, 2 mm/min 1800 MPa ISO 178 Flexural Modulus, 2 mm/min 528 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 528 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 50 Id/m² ISO 180/1A Izod Impact, notched 80°10°4 +23°C 50 Id/m² ISO 180/1A Izod Impact, notched 80°10°4 +23°C 20 Id/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm 45 I/m² ISO 179/1eA Charpy-30°C, V-notch Edgew 80°10°4 sp=62mm 45 I/m² I/m² I/m² I/m² I/m² I/	Tensile Stress, yld, Type I, 50 mm/min	44	MPa	ASTM D638
Flexural Modulus, 2.6 mm/min, 100 mm span 1830 MPa ASTM D790 Tensile Stress, yield, 50 mm/min 45 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 50 % ISO 527 Flexural Stress, yield, 2 mm/min 70 MPa ISO 178 Flexural Modulus, 2 mm/min 1800 MPa ISO 178 IMPACT (¹) J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 41 J m² ASTM D3763 Izod Impact, notched 80°10°4 + 23°C 50 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 + 23°C 20 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 + 23°C 20 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 + 23°C 20 kJ/m² ISO 179/1eA Izon Jone 10°4 sp=62mm 45 kJ/m² ISO 179/1eA Charpy-30°C, V-notch Edgew 80°10°4 sp=62mm 20 kJ/m² ASTM D648 Thermal Conductivity 20 23 W/m²°C ASTM D64	Tensile Strain, brk, Type I, 50 mm/min	56	%	ASTM D638
Tensile Stress, yield, 50 mm/min 50 MPa ISO 527 Tensile Stress, break, 50 mm/min 45 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 50 % ISO 527 Flexural Stress, yield, 2 mm/min 70 MPa ISO 178 Impact (**) ISO 178 ISO 178 Impact (**) ISO 178 ISO 178 Impact (**) MPa ASTM D256 Instrumented Dart Impact Total Energy, 23°C 41 J m ASTM D3763 Izod Impact, notched 80*10*4 + 23°C 50 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 + 23°C 20 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 + 23°C 20 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 + 23°C 20 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 + 29°C 20 kJ/m² ISO 179/1eA Charpy 30°C, V-notch Edgew 80*10*4 sp=62mm 20 kJ/m² ASTM D648 ThERMAL ^(*) *C	Flexural Stress, yld, 2.6 mm/min, 100 mm span	73	MPa	ASTM D790
Tensile Stress, break, 50 mm/min 45 MPa ISO 527 Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 50 % ISO 527 Flexural Stress, yield, 2 mm/min 70 MPa ISO 178 Impact 10 WPa ISO 178 ISO 178 Impact 10 WPa ISO 178 ISO 178 Impact 10 WPa ASTM D256 ISO 180 Instrumented Dart Impact Total Energy, 23°C 41 J/m² ASTM D3763 ISO 180/1A Izod Impact, notched 80°10°4 + 23°C 20 kJ/m² ISO 180/1A ISO 180/1A Izod Impact, notched 80°10°4 - 30°C 20 kJ/m² ISO 179/1eA ISO 179/1eA Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm 45 kJ/m² ISO 179/1eA ISO 179/1eA THERMAL ⁽¹⁾ *** *** *** ASTM D648 The MDT D45 MPA, 6.4 mm, unannealed ** ** ASTM D648 The MDT D45 MPA, 6.4 mm, unannealed ** ** ** ** ** ** ** <t< td=""><td>Flexural Modulus, 2.6 mm/min, 100 mm span</td><td>1830</td><td>MPa</td><td>ASTM D790</td></t<>	Flexural Modulus, 2.6 mm/min, 100 mm span	1830	MPa	ASTM D790
Tensile Strain, yield, 50 mm/min 4 % ISO 527 Tensile Strain, break, 50 mm/min 50 % ISO 527 Flexural Stress, yield, 2 mm/min 70 MPa ISO 178 Impact Impact Impact Total Energy, 23°C 1800 MPa SO 178 Izod Impact, notched, 23°C 528 J/m ASTM D256 Izod Impact, notched Bo*10°4 + 23°C 50 Kl/m² ISO 180/1A Izod Impact, notched 80*10°4 - 23°C 20 Kl/m² ISO 180/1A Lzod Impact, notched 80*10°4 - 30°C 20 Kl/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80*10°4 sp=62mm 45 Kl/m² ISO 179/1eA Charpy -30°C, V-notch Edgew 80*10°4 sp=62mm 20 Kl/m² ISO 179/1eA THERMAL (¹) * * C ASTM D648 Thermal Conductivity 0.23 W/m.°C ASTM C177 Vicat Softening Temp, Rate A/50 240 °C ISO 306 Vicat Softening Temp, Rate B/50 175 °C ISO 306	Tensile Stress, yield, 50 mm/min	50	MPa	ISO 527
Tensile Strain, break, 50 mm/min 50 % ISO 527 Flexural Stress, yield, 2 mm/min 70 MPa ISO 178 Flexural Modulus, 2 mm/min 1800 MPa ISO 178 IMPACT ⁽¹⁾ V V V Izod Impact, notched, 23°C 528 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 41 J ASTM D3763 Izod Impact, notched 80°10°4 +23°C 50 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 +23°C 20 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 sp=62mm 45 kJ/m² ISO 179/1eA Charpy -30°C, V-notch Edgew 80°10°4 sp=62mm 20 kJ/m² ISO 179/1eA Charpy -30°C, V-notch Edgew 80°10°4 sp=62mm 85 °C ASTM D648 THERMAL (¹) V/m²°C ASTM D648 Thermal Conductivity 0.23 W/m²°C ASTM C177 Vicat Softening Temp, Rate A/50 240 °C ISO 306 Vicat Softening Temp, Rate B/50 175 °C ISO 306	Tensile Stress, break, 50 mm/min	45	MPa	ISO 527
Flexural Stress, yield, 2 mm/min 70 MPa ISO 178 Flexural Modulus, 2 mm/min 1800 MPa ISO 178 IMPACT (1) IMPACT (2) Izod Impact, notched, 23°C 528 J/m ASTM D256 Isod Impact, notched 80°10°4 + 23°C 41 J ASTM D3763 Izod Impact, notched 80°10°4 + 23°C 50 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 - 30°C 20 kJ/m² ISO 180/1A Charpy 23°C, V·notch Edgew 80°10°4 sp=62mm 45 kJ/m² ISO 179/1eA Charpy -30°C, V·notch Edgew 80°10°4 sp=62mm 20 kJ/m² ISO 179/1eA THERMAL (1) HDT, 0.45 MPa, 6.4 mm, unannealed 185 °C ASTM D648 Thermal Conductivity 0.23 W/m °C ASTM C177 Vicat Softening Temp, Rate A/50 240 °C ISO 306 Vicat Softening Temp, Rate B/50 175 °C ISO 306	Tensile Strain, yield, 50 mm/min	4	%	ISO 527
Flexural Modulus, 2 mm/min 1800 MPa 150 178 MPACT MPACT	Tensile Strain, break, 50 mm/min	50	%	ISO 527
IMPACT (1) Izod Impact, notched, 23°C 528 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 41 J ASTM D3763 Izod Impact, notched 80°10°4 +23°C 50 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 -30°C 20 kJ/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm 45 kJ/m² ISO 179/1eA Charpy -30°C, V-notch Edgew 80°10°4 sp=62mm 20 kJ/m² ISO 179/1eA THERMAL ⁽¹⁾ * * C ASTM D648 HDT, 0.45 MPa, 6.4 mm, unannealed 185 °C ASTM D648 Thermal Conductivity 0.23 W/m·°C ASTM C177 Vicat Softening Temp, Rate A/50 240 °C ISO 306 Vicat Softening Temp, Rate B/50 175 °C ISO 306	Flexural Stress, yield, 2 mm/min	70	MPa	ISO 178
Izod Impact, notched, 23°C 528 J/m ASTM D256 Instrumented Dart Impact Total Energy, 23°C 41 J ASTM D3763 Izod Impact, notched 80°10°4 + 23°C 50 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 - 30°C 20 kJ/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm 45 kJ/m² ISO 179/1eA Charpy -30°C, V-notch Edgew 80°10°4 sp=62mm 20 kJ/m² ISO 179/1eA THERMAL ⁽¹⁾ ** ** <td>Flexural Modulus, 2 mm/min</td> <td>1800</td> <td>MPa</td> <td>ISO 178</td>	Flexural Modulus, 2 mm/min	1800	MPa	ISO 178
Instrumented Dart Impact Total Energy, 23°C 41 J ASTM D3763 Izod Impact, notched 80°10°4 +23°C 50 kJ/m² ISO 180/1A Izod Impact, notched 80°10°4 -30°C 20 kJ/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80°10°4 sp=62mm 45 kJ/m² ISO 179/1eA Charpy -30°C, V-notch Edgew 80°10°4 sp=62mm 20 kJ/m² ISO 179/1eA THERMAL (¹¹) HDT, 0.45 MPa, 6.4 mm, unannealed 185 °C ASTM D648 Thermal Conductivity 0.23 W/m-°C ASTM C177 Vicat Softening Temp, Rate A/50 240 °C ISO 306 Vicat Softening Temp, Rate B/50 175 °C ISO 306	IMPACT (1)			
Izod Impact, notched 80*10*4 +23°C 50 kJ/m² ISO 180/1A Izod Impact, notched 80*10*4 -30°C 20 kJ/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm 45 kJ/m² ISO 179/1eA Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm 20 kJ/m² ISO 179/1eA THERMAL (1) HDT, 0.45 MPa, 6.4 mm, unannealed 185 °C ASTM D648 Thermal Conductivity 0.23 W/m·°C ASTM C177 Vicat Softening Temp, Rate A/50 240 °C ISO 306 Vicat Softening Temp, Rate B/50 175 °C ISO 306	Izod Impact, notched, 23°C	528	J/m	ASTM D256
Izod Impact, notched 80*10*4-30°C 20 kJ/m² ISO 180/1A Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm 45 kJ/m² ISO 179/1eA Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm 20 kJ/m² ISO 179/1eA THERMAL (¹) HDT, 0.45 MPa, 6.4 mm, unannealed 185 °C ASTM D648 Thermal Conductivity 0.23 W/m-°C ASTM C177 Vicat Softening Temp, Rate A/50 240 °C ISO 306 Vicat Softening Temp, Rate B/50 175 °C ISO 306	Instrumented Dart Impact Total Energy, 23°C	41	J	ASTM D3763
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm 45 kJ/m² ISO 179/1eA Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm 20 kJ/m² ISO 179/1eA THERMAL (1) HDT, 0.45 MPa, 6.4 mm, unannealed 185 °C ASTM D648 Thermal Conductivity 0.23 W/m-°C ASTM C177 Vicat Softening Temp, Rate A/50 240 °C ISO 306 Vicat Softening Temp, Rate B/50 175 °C ISO 306	Izod Impact, notched 80*10*4 +23°C	50	kJ/m²	ISO 180/1A
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm 20 kJ/m² ISO 179/1eA THERMAL (1) HDT, 0.45 MPa, 6.4 mm, unannealed 185 °C ASTM D648 Thermal Conductivity 0.23 W/m-°C ASTM C177 Vicat Softening Temp, Rate A/50 240 °C ISO 306 Vicat Softening Temp, Rate B/50 175 °C ISO 306	Izod Impact, notched 80*10*4 -30°C	20	kJ/m²	ISO 180/1A
THERMAL (1) HDT, 0.45 MPa, 6.4 mm, unannealed 185 °C ASTM D648 Thermal Conductivity 0.23 W/m-°C ASTM C177 Vicat Softening Temp, Rate A/50 240 °C ISO 306 Vicat Softening Temp, Rate B/50 175 °C ISO 306	Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	45	kJ/m²	ISO 179/1eA
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Thermal Conductivity 0.23 W/m-°C ASTM C177 Vicat Softening Temp, Rate A/50 240 °C ISO 306 Vicat Softening Temp, Rate B/50 175 °C ISO 306	THERMAL (1)			
Vicat Softening Temp, Rate A/50 240 °C ISO 306 Vicat Softening Temp, Rate B/50 °C ISO 306	HDT, 0.45 MPa, 6.4 mm, unannealed	185	°C	ASTM D648
Vicat Softening Temp, Rate B/50 175 °C ISO 306	Thermal Conductivity	0.23	W/m-°C	ASTM C177
3 · P · · · · · · · · · · · · · · · · ·	Vicat Softening Temp, Rate A/50	240	°C	ISO 306
Vicat Softening Temp, Rate B/120 180 °C ISO 306	Vicat Softening Temp, Rate B/50	175	°C	ISO 306
	Vicat Softening Temp, Rate B/120	180	°C	ISO 306



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	175	°C	ISO 75/Be
PHYSICAL (1)			
Specific Gravity	1.08	-	ASTM D792
Water Absorption, (23°C/Saturated)	3.5	%	ASTM D570
Moisture Absorption, (50% RH, Equilibrium)	1.19	%	ASTM D570
Mold Shrinkage, flow ⁽²⁾	1.5	%	SABIC method
Mold Shrinkage, xflow ⁽²⁾	1.3	%	SABIC method
Melt Volume Rate, MVR at 280°C/2.16 kg	7	cm³/10 min	ISO 1133
INJECTION MOLDING (3)			
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	295 – 315	°C	
Nozzle Temperature	295 – 315	°C	
Front - Zone 3 Temperature	290 – 315	°C	
Middle - Zone 2 Temperature	280 – 315	°C	
Rear - Zone 1 Temperature	275 – 315	°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	

⁽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.

MORE INFORMATION

For curve data and CAE cards, please visit and register at https://materialfinder.sabic-specialties.com

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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.