NORYL™ Resin GFN3
Americas: COMMERCIAL

PPE+PS blend. 30% Glass reinforced. Low water absorption. Hydrolytic stability. Dimensional stability. Suitable for fluid engineering applications including pump housings, pump impellers and water meter components.

TYPICAL PROPERTIES[1]	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Tensile Stress, brk, Type I, 5 mm/min	1180	kgf/cm²	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	2	%	ASTM D 638
Tensile Modulus, 5 mm/min	93300	kgf/cm²	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	1830	kgf/cm²	ASTM D 790
Flexural Stress, yld, 2.6 mm/min, 100 mm span	1650	kgf/cm²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	81500	kgf/cm²	ASTM D 790
Flexural Modulus, 2.6 mm/min, 100 mm span	73100	kgf/cm²	ASTM D 790
Hardness, Rockwell L	108	-	ASTM D 785
Tensile Stress, break	117	MPa	ISO 527
Tensile Strain, break	1.8	%	ISO 527
Tensile Modulus, 1 mm/min	8740	MPa	ISO 527
Flexural Stress	183	MPa	ISO 178
Flexural Modulus	8710	MPa	ISO 178
IMPACT			
Izod Impact, unnotched, 23°C	59	cm-kgf/cm	ASTM D 4812
Izod Impact, notched, 23°C	11	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	12	cm-kgf/cm	ASTM D 256
Izod Impact, unnotched 80*10*4 +23°C	31	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	35	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	12	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	11	kJ/m²	ISO 180/1A
Charpy Impact, notched, 23°C	12	kJ/m²	ISO 179/2C

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(2) Only typical data for selection purposes. Not to be used for part or tool design.
(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.
(4) Internal measurements according to UL standards.
(5) 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.
(6) Needs hard coat to consistently pass 60 sec Vertical Burn.

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IMPACT			
Charpy Impact, notched, -30°C	11	kJ/m²	ISO 179/2C
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	39	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	47	kJ/m²	ISO 179/1eU
THERMAL			
HDT, 0.45 MPa, 3.2 mm, unannealed	142	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	137	°C	ASTM D 648
HDT, 0.45 MPa, 6.4 mm, unannealed	158	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	137	°C	ASTM D 648
CTE, -40°C to 40°C, flow	3.06E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	6.18E-05	1/°C	ASTM E 831
Vicat Softening Temp, Rate B/50	143	°C	ISO 306
Vicat Softening Temp, Rate B/120	147	°C	ISO 306
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	143	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	137	°C	ISO 75/Af
Relative Temp Index, Elec	90	°C	UL 746B
Relative Temp Index, Mech w/impact	90	°C	UL 746B
Relative Temp Index, Mech w/o impact	90	°C	UL 746B
PHYSICAL			
Specific Gravity	1.29	-	ASTM D 792
Water Absorption, 24 hours	0.06	%	ASTM D 570
Mold Shrinkage, flow, 3.2 mm (5)	0.1 - 0.4	%	SABIC Method
Melt Flow Rate, 300°C/5.0 kgf	8.6	g/10 min	ASTM D 1238
Melt Volume Rate, MVR at 300°C/5.0 kg	7	cm³/10 min	ISO 1133
ELECTRICAL			
Dielectric Strength, in oil, 3.2 mm	21.6	kV/mm	ASTM D 149
Relative Permittivity, 50/60 Hz	2.93	-	ASTM D 150

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ELECTRICAL			
Dissipation Factor, 50/60 Hz	0.0009	-	ASTM D 150
Arc Resistance, Tungsten {PLC}	7	PLC Code	ASTM D 495
Hot Wire Ignition {PLC}	4	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	3	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	4	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	4	PLC Code	UL 746A
FLAME CHARACTERISTICS			
UL Recognized, 94HB Flame Class Rating (3)	1.47	mm	UL 94
Oxygen Index (LOI)	26	%	ASTM D 2863

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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Injection Molding		
Drying Temperature	110 - 120	°C
Drying Time	3 - 4	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	300 - 325	°C
Nozzle Temperature	300 - 325	°C
Front - Zone 3 Temperature	290 - 325	°C
Middle - Zone 2 Temperature	275 - 320	°C
Rear - Zone 1 Temperature	265 - 315	°C
Mold Temperature	80 - 110	°C
Back Pressure	0.3 - 0.7	MPa
Screw Speed	20 - 100	rpm
Shot to Cylinder Size	30 - 70	%

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