

Noryl* Resin GFN1 Americas: COMMERCIAL

PPE+PS blend. 10% Glass reinforced. NSF 61 listing in several colors (restrictions apply). FDA compliance (restrictions apply). Low water absorption. Hydrolytic stability. Dimensional stability. Suitable for fluid engineering applications including water filter and water meter components.

TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Tensile Stress, brk, Type I, 5 mm/min	640	kgf/cm ²	ASTM D 638
Tensile Strain, break	3	%	ASTM D 638
Tensile Modulus, 5 mm/min	44300	kgf/cm ²	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	1180	kgf/cm ²	ASTM D 790
Flexural Stress, yld, 2.6 mm/min, 100 mm span	1090	kgf/cm ²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	39100	kgf/cm ²	ASTM D 790
Flexural Modulus, 2.6 mm/min, 100 mm span	36500	kgf/cm ²	ASTM D 790
Hardness, Rockwell L	104	-	ASTM D 785
Tensile Stress, break	64	MPa	ISO 527
Tensile Strain, break	3	%	ISO 527
Tensile Modulus, 1 mm/min	4400	MPa	ISO 527
Flexural Stress	122	MPa	ISO 178
Flexural Modulus	4160	MPa	ISO 178
IMPACT			
Izod Impact, unnotched, 23°C	45	cm-kgf/cm	ASTM D 4812
Izod Impact, notched, 23°C	12	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	10	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	221	cm-kgf	ASTM D 3763
Izod Impact, unnotched 80*10*4 +23°C	27	kJ/m ²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	25	kJ/m ²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	10	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	9	kJ/m ²	ISO 180/1A

(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±176.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.

Source GMD, last updated:

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TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
IMPACT			
Charpy Impact, notched, 23°C	11	kJ/m ²	ISO 179/2C
Charpy Impact, notched, -30°C	9	kJ/m ²	ISO 179/2C
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	34	kJ/m ²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	33	kJ/m ²	ISO 179/1eU
THERMAL			
HDT, 0.45 MPa, 3.2 mm, unannealed	131	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	122	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	125	°C	ASTM D 648
CTE, -40°C to 40°C, flow	5.12E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	7.14E-05	1/°C	ASTM E 831
Vicat Softening Temp, Rate B/50	131	°C	ISO 306
Vicat Softening Temp, Rate B/120	134	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	132	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	124	°C	ISO 75/Ae
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	1.13	-	ASTM D 792
Water Absorption, 24 hours	0.06	%	ASTM D 570
Mold Shrinkage, flow, 3.2 mm	0.2 - 0.5	%	SABIC Method
Melt Flow Rate, 300°C/5.0 kgf	16.6	g/10 min	ASTM D 1238
Melt Volume Rate, MVR at 300°C/5.0 kg	16	cm ³ /10 min	ISO 1133
ELECTRICAL			
Relative Permittivity, 1 MHz	2.9	-	ASTM D 150
Dissipation Factor, 1 MHz	0.0014	-	ASTM D 150

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TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
ELECTRICAL			
Arc Resistance, Tungsten {PLC}	7	PLC Code	ASTM D 495
Hot Wire Ignition {PLC}	5	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	4	PLC Code	UL 746A
FLAME CHARACTERISTICS			
UL Recognized, 94HB Flame Class Rating (3)	1.47	mm	UL 94
UV-light, water exposure/immersion	F1	-	UL 746C

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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Injection Molding		
Drying Temperature	105 - 110	°C
Drying Time	3 - 4	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	295 - 315	°C
Nozzle Temperature	295 - 315	°C
Front - Zone 3 Temperature	280 - 315	°C
Middle - Zone 2 Temperature	270 - 310	°C
Rear - Zone 1 Temperature	260 - 305	°C
Mold Temperature	75 - 105	°C
Back Pressure	0.3 - 0.7	MPa
Screw Speed	20 - 100	rpm
Shot to Cylinder Size	30 - 70	%

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