

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.

Property

| TYPICAL PROPERTIES ⁽¹⁾ | | | |
|---|----------|-------------------|-------------|
| MECHANICAL | Value | Unit | Standard |
| Tensile Stress, brk, Type I, 5 mm/min | 63 | MPa | ASTM D 638 |
| Tensile Strain, break | 3 | % | ASTM D 638 |
| Tensile Modulus, 5 mm/min | 4350 | MPa | ASTM D 638 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 116 | MPa | ASTM D 790 |
| Flexural Stress, yld, 2.6 mm/min, 100 mm span | 107 | MPa | ASTM D 790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 3840 | MPa | ASTM D 790 |
| Flexural Modulus, 2.6 mm/min, 100 mm span | 3580 | MPa | 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 | Value | Unit | Standard |
| Izod Impact, unnotched, 23°C | 449 | J/m | ASTM D 4812 |
| Izod Impact, notched, 23°C | 118 | J/m | ASTM D 256 |
| Izod Impact, notched, -30°C | 103 | J/m | ASTM D 256 |
| Instrumented Impact Total Energy, 23°C | 21 | J | 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 |
| 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 | Value | Unit | Standard |
| 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 | Value | Unit | Standard |
| 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 | Value | Unit | Standard |
| Relative Permittivity, 1 MHz | 2.9 | - | ASTM D 150 |
| Dissipation Factor, 1 MHz | 0.0014 | - | ASTM D 150 |
| 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 | Value | Unit | Standard |
| UL Recognized, 94HB Flame Class Rating (3) | 1.47 | mm | UL 94 |
| UV-light, water exposure/immersion | F1 | - | UL 746C |

Source GMD, last updated:08/06/2004

Processing

| Parameter | 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 | % |

Source GMD, last updated:08/06/2004

THESE PROPERTY VALUES ARE NOT INTENDED FOR SPECIFICATION PURPOSES.

PLEASE CHECK WITH YOUR [\(LOCAL SALES OFFICE\)](#) FOR AVAILABILITY IN YOUR REGION

(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.

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