



NORYL™ Resin FE1520PW
Americas: COMMERCIAL

Noryl* FE1520PW resin is a blend of polyphenylene ether (PPE) and polystyrene (PS) resin that contains 20% glass reinforcement. The resin is suitable for injection molding. Noryl FE1520PW resin has been developed for fluid engineering applications that require improved hydrolytic stability. Noryl FE1520PW resin has been certified for potable water applications up to 85C in Europe and North America in limited colors.

| TYPICAL PROPERTIES ¹ | TYPICAL VALUE | Unit | Standard |
|--|---------------|---------------------|--------------|
| MECHANICAL | | | |
| Tensile Stress, brk, Type I, 5 mm/min | 1210 | kgf/cm ² | ASTM D 638 |
| Tensile Strain, brk, Type I, 5 mm/min | 2.6 | % | ASTM D 638 |
| Tensile Modulus, 5 mm/min | 72400 | kgf/cm ² | ASTM D 638 |
| Flexural Stress, brk, 1.3 mm/min, 50 mm span | 1780 | kgf/cm ² | ASTM D 790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 71000 | kgf/cm ² | ASTM D 790 |
| Taber Abrasion, CS-17, 1 kg | 65 | mg/1000cy | SABIC Method |
| Tensile Stress, break, 5 mm/min | 119 | MPa | ISO 527 |
| Tensile Strain, break, 5 mm/min | 2.6 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 7170 | MPa | ISO 527 |
| Flexural Stress, break, 2 mm/min | 165 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 6040 | MPa | ISO 178 |
| Hardness, H358/30 | 220 | MPa | ISO 2039-1 |
| IMPACT | | | |
| Izod Impact, unnotched, 23°C | 40 | cm-kgf/cm | ASTM D 4812 |
| Izod Impact, unnotched, -30°C | 40 | cm-kgf/cm | ASTM D 4812 |
| Izod Impact, notched, 23°C | 6 | cm-kgf/cm | ASTM D 256 |
| Izod Impact, notched, -30°C | 4 | cm-kgf/cm | ASTM D 256 |
| Izod Impact, unnotched 80°10*4 +23°C | 25 | kJ/m ² | ISO 180/1U |
| Izod Impact, unnotched 80°10*4 -30°C | 23 | kJ/m ² | ISO 180/1U |
| Izod Impact, notched 80°10*4 +23°C | 6 | kJ/m ² | ISO 180/1A |
| Izod Impact, notched 80°10*4 -30°C | 4 | kJ/m ² | ISO 180/1A |
| Charpy Impact, notched, 23°C | 6 | kJ/m ² | 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.

Source GMD, last updated:

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| TYPICAL PROPERTIES ¹ | TYPICAL VALUE | Unit | Standard |
|---|---------------|-------------------------|--------------|
| IMPACT | | | |
| Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm | 5 | kJ/m ² | ISO 179/1eA |
| Charpy Impact, notched, -30°C | 27 | kJ/m ² | ISO 179/2C |
| Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm | 30 | kJ/m ² | ISO 179/1eU |
| THERMAL | | | |
| HDT, 1.82 MPa, 3.2mm, unannealed | 135 | °C | ASTM D 648 |
| CTE, -40°C to 40°C, flow | 3.E-05 | 1/°C | ISO 11359-2 |
| CTE, -40°C to 40°C, xflow | 7.E-05 | 1/°C | ISO 11359-2 |
| Vicat Softening Temp, Rate A/50 | 150 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 144 | °C | ISO 306 |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm | 139 | °C | ISO 75/Be |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm | 132 | °C | ISO 75/Ae |
| PHYSICAL | | | |
| Water Absorption, 50% RH, equilib | 0.06 | % | ASTM D 570 |
| Mold Shrinkage, flow, 3.2 mm (5) | 0.2 - 0.4 | % | SABIC Method |
| Mold Shrinkage, xflow, 3.2 mm (5) | 0.3 - 0.6 | % | SABIC Method |
| Density | 1.24 | g/cm ³ | ISO 1183 |
| Water Absorption, (23°C/sat) | 0.2 | % | ISO 62 |
| Melt Volume Rate, MVR at 280°C/10.0 kg | 22 | cm ³ /10 min | ISO 1133 |

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| PROCESSING PARAMETERS | TYPICAL VALUE | Unit |
|-----------------------------|---------------|------|
| Injection Molding | | |
| Drying Temperature | 100 - 120 | °C |
| Drying Time | 2 - 4 | hrs |
| Maximum Moisture Content | 0.02 | % |
| Melt Temperature | 280 - 300 | °C |
| Nozzle Temperature | 280 - 300 | °C |
| Front - Zone 3 Temperature | 290 - 310 | °C |
| Middle - Zone 2 Temperature | 270 - 290 | °C |
| Rear - Zone 1 Temperature | 250 - 270 | °C |
| Hopper Temperature | 60 - 80 | °C |
| Mold Temperature | 80 - 120 | °C |

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