SABIC Innovative Plastics™

# Noryl* Resin NH5120

Americas: COMMERCIAL

Noryl* NH5120 Resin is an unreinforced blend of Polyphenylene Ether(PPE) + Polystyrenre resin. The material offers a good balance of heat, flow, hydrolytic stability, and non-halogenated V1 flame retardant performance. The material is suitable for injection molding and is available in custom colors.

## Property

| TYPICAL PROPERTIES (1) | | | |
|---|---|---|---|
| MECHANICAL | Value | Unit | Standard |
| Tensile Stress, yld, Type I, 50 mm/min | 66 | MPa | ASTM D 638 |
| Tensile Stress, brk, Type I, 50 mm/min | 52 | MPa | ASTM D 638 |
| Tensile Strain, yld, Type I, 50 mm/min | 4.5 | % | ASTM D 638 |
| Tensile Strain, brk, Type I, 50 mm/min | 29 | % | ASTM D 638 |
| Tensile Modulus, 50 mm/min | 2610 | MPa | ASTM D 638 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 105 | MPa | ASTM D 790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 2680 | MPa | ASTM D 790 |
| Tensile Stress, yield, 50 mm/min | 65 | MPa | ISO 527 |
| Tensile Stress, break, 50 mm/min | 57 | MPa | ISO 527 |
| Tensile Strain, yield, 50 mm/min | 4.4 | % | ISO 527 |
| Tensile Strain, break, 50 mm/min | 9.2 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 2650 | MPa | ISO 527 |
| Flexural Stress, yield, 2 mm/min | 105 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 2610 | MPa | ISO 178 |
| IMPACT | Value | Unit | Standard |
| Izod Impact, notched, 23°C | 186 | J/m | ASTM D 256 |
| Izod Impact, notched, -30°C | 111 | J/m | ASTM D 256 |
| Instrumented Impact Total Energy, 23°C | 53 | J | ASTM D 3763 |
| Izod Impact, notched 80*10*4 +23°C | 15 | kJ/m² | ISO 180/1A |
| Izod Impact, notched 80*10*4 -30°C | 12 | kJ/m² | ISO 180/1A |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm | 17 | kJ/m² | ISO 179/1eA |
| THERMAL | Value | Unit | Standard |
| Vicat Softening Temp, Rate B/50 | 136 | °C | ASTM D 1525 |
| HDT, 0.45 MPa, 3.2 mm, unannealed | 131 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 3.2mm, unannealed | 116 | °C | ASTM D 648 |
| HDT, 0.45 MPa, 6.4 mm, unannealed | 134 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 6.4 mm, unannealed | 123 | °C | ASTM D 648 |
| CTE, -40°C to 40°C, flow | 8.1E-05 | 1/°C | ASTM E 831 |
| CTE, -40°C to 40°C, xflow | 7.7E-05 | 1/°C | ASTM E 831 |
| CTE, -40°C to 40°C, flow | 8.1E-05 | 1/°C | ISO 11359-2 |
| CTE, -40°C to 40°C, xflow | 7.7E-05 | 1/°C | ISO 11359-2 |
| Vicat Softening Temp, Rate B/50 | 136 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 138 | °C | ISO 306 |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm | 118 | °C | ISO 75/Af |
| Relative Temp Index, Elec | 110 | °C | UL 746B |
| Relative Temp Index, Mech w/impact | 105 | °C | UL 746B |
| Relative Temp Index, Mech w/o impact | 110 | °C | UL 746B |

| PHYSICAL | Value | Unit | Standard |
|---|---|---|---|
| Specific Gravity | 1.1 | - | ASTM D 792 |
| Mold Shrinkage, flow, 3.2 mm | 0.5 - 0.7 | % | SABIC Method |
| Melt Flow Rate, 280°C/5.0 kgf | 12.2 | g/10 min | ASTM D 1238 |
| Density | 1.08 | g/cm³ | ISO 1183 |
| Water Absorption, (23°C/sat) | 0.25 | % | ISO 62 |
| Moisture Absorption (23°C / 50% RH) | 0.05 | % | ISO 62 |
| Melt Volume Rate, MVR at 280°C/5.0 kg | 11 | cm³/10 min | ISO 1133 |
| ELECTRICAL | Value | Unit | Standard |
| Hot Wire Ignition {PLC) | 1 | PLC Code | UL 746A |
| High Ampere Arc Ign, surface {PLC} | 0 | PLC Code | UL 746A |
| Comparative Tracking Index (UL) {PLC} | 2 | PLC Code | UL 746A |
| FLAME CHARACTERISTICS | Value | Unit | Standard |
| UL Recognized, 94V-1 Flame Class Rating (3) | 1.5 | mm | UL 94 |

Source GMD, last updated:05/02/2007

## Processing

| Parameter<br>Injection Molding | Value | Unit |
|---|---|---|
| Drying Temperature | 105 - 110 | °C |
| Drying Time | 3 - 4 | hrs |
| Drying Time (Cumulative) | 8 | hrs |
| Maximum Moisture Content | 0.02 | % |
| Melt Temperature | 280 - 310 | °C |
| Nozzle Temperature | 280 - 310 | °C |
| Front - Zone 3 Temperature | 270 - 310 | °C |
| Middle - Zone 2 Temperature | 260 - 305 | °C |
| Rear - Zone 1 Temperature | 250 - 300 | °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:05/02/2007

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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