# NORYL™ RESIN N850

REGION ASIA

## DESCRIPTION

NORYL N850 resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS). This high flow, injection moldable grade contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of 5VA at 3mm and V0 at 1.5mm along with UL746C Outdoor Suitability rating of F2. NORYL N850 resin exhibits high impact strength, dimensional stability, hydrolytic stability, and very low moisture absorption. This material is an excellent candidate for electrical and business equipment applications.

| GENERAL INFORMATION | |
|---|---|
| **Features** | Flame Retardant, High Flow, Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Dimensional stability |
| **Fillers** | Unreinforced |
| **Polymer Types** | Polyphenylene Ether + PS (PPE+PS) |
| **Processing Techniques** | Injection Molding |

| INDUSTRY | SUB INDUSTRY |
|---|---|
| Electrical and Electronics | Electronic Components, Mobile Phone - Computer - Tablets |
| Industrial | Electrical |

## TYPICAL PROPERTY VALUES

Revision 20260421

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| MECHANICAL [1] | | | |
| **Tensile Stress, yld, Type I, 50 mm/min** | 62 | MPa | ASTM D638 |
| **Tensile Stress, brk, Type I, 50 mm/min** | 48 | MPa | ASTM D638 |
| **Tensile Strain, yld, Type I, 50 mm/min** | 3.6 | % | ASTM D638 |
| **Tensile Strain, brk, Type I, 50 mm/min** | 18 | % | ASTM D638 |
| **Tensile Modulus, 50 mm/min** | 2620 | MPa | ASTM D638 |
| **Flexural Stress, yld, 1.3 mm/min, 50 mm span** | 96 | MPa | ASTM D790 |
| **Flexural Modulus, 1.3 mm/min, 50 mm span** | 2410 | MPa | ASTM D790 |
| **Tensile Stress, yield, 50 mm/min** | 66 | MPa | ISO 527 |
| **Tensile Stress, break, 50 mm/min** | 61 | MPa | ISO 527 |
| **Tensile Strain, yield, 50 mm/min** | 3.2 | % | ISO 527 |
| **Tensile Strain, break, 50 mm/min** | 4.5 | % | ISO 527 |
| **Tensile Modulus, 1 mm/min** | 2950 | MPa | ISO 527 |
| **Flexural Stress, yield, 2 mm/min** | 107 | MPa | ISO 178 |
| **Flexural Modulus, 2 mm/min** | 2600 | MPa | ISO 178 |
| IMPACT [1] | | | |
| **Izod Impact, notched, 23°C** | 213 | J/m | ASTM D256 |
| **Instrumented Dart Impact Total Energy, 23°C** | 31 | J | ASTM D3763 |
| **Izod Impact, notched 80*10*4 +23°C** | 10 | kJ/m² | ISO 180/1A |
| THERMAL [1] | | | |

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| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| Vicat Softening Temp, Rate B/50 | 101 | °C | ASTM D1525 |
| HDT, 0.45 MPa, 3.2 mm, unannealed | 93 | °C | ASTM D648 |
| HDT, 1.82 MPa, 3.2mm, unannealed | 82 | °C | ASTM D648 |
| HDT, 0.45 MPa, 6.4 mm, unannealed | 98 | °C | ASTM D648 |
| HDT, 1.82 MPa, 6.4 mm, unannealed | 86 | °C | ASTM D648 |
| CTE, -40°C to 40°C, flow | 7.74E-05 | 1/°C | ASTM E831 |
| CTE, -40°C to 40°C, xflow | 8.1E-05 | 1/°C | ASTM E831 |
| Vicat Softening Temp, Rate B/120 | 108 | °C | ISO 306 |
| HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm | 95 | °C | ISO 75/Bf |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm | 82 | °C | ISO 75/Af |
| Relative Temp Index, Elec | 50 | °C | UL 746B |
| Relative Temp Index, Mech w/impact | 50 | °C | UL 746B |
| Relative Temp Index, Mech w/o impact | 50 | °C | UL 746B |
| PHYSICAL [1] | | | |
| Specific Gravity | 1.13 | - | ASTM D792 |
| Mold Shrinkage, flow, 3.2 mm [2] | 0.5 – 0.7 | % | SABIC method |
| Melt Flow Rate | | | |
| 220°C/2.16 kgf | 14 | g/10 min | ASTM D1238 |
| 260°C/3.8 kgf | 18 | g/10 min | ASTM D1238 |
| ELECTRICAL [1] | | | |
| Hot Wire Ignition {PLC} | 2 | PLC Code | UL 746A |
| High Voltage Arc Track Rate {PLC} | 4 | PLC Code | UL 746A |
| High Ampere Arc Ign, surface {PLC} | 2 | PLC Code | UL 746A |
| Comparative Tracking Index (UL) {PLC} | 2 | PLC Code | UL 746A |
| FLAME CHARACTERISTICS | | | |
| UL Recognized, 94HB Flame Class Rating | 0.99 | mm | UL 94 |
| UL Recognized, 94V-0 Flame Class Rating | 1.5 | mm | UL 94 |
| UL Recognized, 94-5VA Flame Class Rating | 3 | mm | UL 94 |
| Oxygen Index (LOI) | 36.4 | % | ASTM D2863 |
| UV-light, water exposure/immersion | F2 | - | UL 746C |
| INJECTION MOLDING [3] | | | |
| Drying Temperature | 75 – 80 | °C | |
| Drying Time | 3 – 4 | Hrs | |
| Drying Time (Cumulative) | 8 | Hrs | |
| Maximum Moisture Content | 0.02 | % | |
| Melt Temperature | 250 – 275 | °C | |
| Nozzle Temperature | 250 – 275 | °C | |
| Front - Zone 3 Temperature | 240 – 275 | °C | |
| Middle - Zone 2 Temperature | 225 – 270 | °C | |
| Rear - Zone 1 Temperature | 215 – 265 | °C | |
| Mold Temperature | 55 – 75 | °C | |
| Back Pressure | 0.3 – 0.7 | MPa | |
| Screw Speed | 20 – 100 | rpm | |
| Shot to Cylinder Size | 30 – 70 | % | |
| Vent Depth | 0.038 – 0.051 | mm | |

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(1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.

(2) 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.

(3) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.

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