# NORYL™ RESIN 7310

REGION EUROPE

## DESCRIPTION

NORYL™ 7310 resin is a non-reinforced blend of polyphenylene ether (PPE) + high impact polystyrene (HIPS). This injection moldable grade exhibits good surface appearance, high ductility, and good impact resistance along with low moisture absorption, creep resistance, dimensional stability, and hydrolytic stability. NORYL 7310 resin is an excellent candidate for a variety of applications.

## TYPICAL PROPERTY VALUES

Revision 20190925

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| **MECHANICAL** | | | |
| Taber Abrasion, CS-17, 1 kg | 65 | mg/1000cy | SABIC method |
| Tensile Stress, yield, 50 mm/min | 55 | MPa | ISO 527 |
| Tensile Stress, break, 50 mm/min | 50 | MPa | ISO 527 |
| Tensile Strain, yield, 50 mm/min | 5 | % | ISO 527 |
| Tensile Strain, break, 50 mm/min | 30 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 2300 | MPa | ISO 527 |
| Flexural Stress, yield, 2 mm/min | 75 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 2200 | MPa | ISO 178 |
| Ball Indentation Hardness, H358/30 | 100 | MPa | ISO 2039-1 |
| **IMPACT** | | | |
| Izod Impact, notched 80*10*4 +23°C | 15 | kJ/m² | ISO 180/1A |
| Izod Impact, notched 80*10*4 -30°C | 5 | kJ/m² | ISO 180/1A |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm | 15 | kJ/m² | ISO 179/1eA |
| Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm | 5 | kJ/m² | ISO 179/1eA |
| **THERMAL** | | | |
| Thermal Conductivity | 0.22 | W/m·°C | ISO 8302 |
| CTE, 23°C to 80°C, flow | 7.E-05 | 1/°C | ISO 11359-2 |
| CTE, 23°C to 80°C, xflow | 7.E-05 | 1/°C | ISO 11359-2 |
| Ball Pressure Test, approximate maximum | 133 | °C | IEC 60695-10-2 |
| Vicat Softening Temp, Rate A/50 | 145 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/50 | 135 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 140 | °C | ISO 306 |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm | 130 | °C | ISO 75/Be |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm | 115 | °C | ISO 75/Ae |
| Relative Temp Index, Elec [1] | 105 | °C | UL 746B |
| Relative Temp Index, Mech w/impact [1] | 90 | °C | UL 746B |
| Relative Temp Index, Mech w/o impact [1] | 105 | °C | UL 746B |
| **PHYSICAL** | | | |
| Mold Shrinkage on Tensile Bar, flow | 0.5 – 0.7 | % | SABIC method |
| Density | 1.06 | g/cm³ | ISO 1183 |
| Water Absorption, (23°C/sat) | 0.23 | % | ISO 62 |
| Moisture Absorption (23°C / 50% RH) | 0.06 | % | ISO 62 |
| Melt Volume Rate, MVR at 280°C/5.0 kg | 8 | cm³/10 min | ISO 1133 |

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| ELECTRICAL | | | |
| Volume Resistivity | 1.E+15 | Ohm-cm | IEC 60093 |
| Surface Resistivity, ROA | >1.E+15 | Ohm | IEC 60093 |
| Dielectric Strength, in oil, 3.2 mm | 19 | kV/mm | IEC 60243-1 |
| Relative Permittivity, 1 MHz | 2.6 | - | IEC 60250 |
| Dissipation Factor, 50/60 Hz | 0.002 | - | IEC 60250 |
| Dissipation Factor, 1 MHz | 0.001 | - | IEC 60250 |
| Comparative Tracking Index | 175 | V | IEC 60112 |
| Relative Permittivity, 50/60 Hz | 2.7 | - | IEC 60250 |
| Comparative Tracking Index (UL) {PLC} (2) | 2 | PLC Code | UL 746A |
| High Voltage Arc Track Rate {PLC} | 4 | PLC Code | UL 746A |
| High Amp Arc Ignition (HAI), PLC 2 | ≥1.5 | mm | UL 746A |
| High Amp Arc Ignition (HAI), PLC 3 | ≥3 | mm | UL 746A |
| Hot-Wire Ignition (HWI), PLC 1 | ≥1.5 | mm | UL 746A |
| Arc Resistance, Tungsten {PLC} | 6 | PLC Code | ASTM D 495 |
| FLAME CHARACTERISTICS (1) | | | |
| UL Yellow Card Link | E45329-236745 | - | - |
| UL Recognized, 94HB Flame Class Rating | ≥1.5 | mm | UL 94 |
| Glow Wire Flammability Index 750°C, passes at | 3.2 | mm | IEC 60695-2-12 |
| Oxygen Index (LOI) | 22 | % | ISO 4589 |
| INJECTION MOLDING | | | |
| Drying Temperature | 100 – 120 | °C | |
| Drying Time | 2 – 3 | hrs | |
| Melt Temperature | 280 – 300 | °C | |
| Nozzle Temperature | 260 – 280 | °C | |
| Front - Zone 3 Temperature | 280 – 300 | °C | |
| Middle - Zone 2 Temperature | 260 – 280 | °C | |
| Rear - Zone 1 Temperature | 240 – 260 | °C | |
| Hopper Temperature | 60 – 80 | °C | |
| Mold Temperature | 80 – 120 | °C | |
| PROFILE EXTRUSION | | | |
| Drying Temperature | 100 – 110 | °C | |
| Drying Time | 2 – 3 | hrs | |
| Melt Temperature | 250 – 270 | °C | |
| Barrel - Zone 1 Temperature | 220 – 240 | °C | |
| Barrel - Zone 2 Temperature | 230 – 250 | °C | |
| Barrel - Zone 3 Temperature | 250 – 270 | °C | |
| Barrel - Zone 4 Temperature | 250 – 270 | °C | |
| Hopper Temperature | 40 – 60 | °C | |
| Adapter Temperature | 250 – 270 | °C | |
| Die Temperature | 250 – 270 | °C | |
| Calibrator Temperature | 60 – 80 | °C | |

(1) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.

(2) Value shown here is based on internal measurement.

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