

# NORYL™ RESIN PX9406

REGION EUROPE

## DESCRIPTION

NORYL PX9406 resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS). This injection moldable grade contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of 5VA at 2.5mm, V0 at 0.75mm and UL746C F2 rating. NORYL PX9406 exhibits improved productivity and reliability along with high heat resistance, low warpage, low moisture absorption, and dimensional stability. This material is an excellent candidate for electrical applications.

### GENERAL INFORMATION

|                       |                                                                                                                                                                                                                                                              |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Features              | Flame Retardant, Heat Stabilized, Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Dimensional stability, No PFAS intentionally added |
| Fillers               | Unreinforced                                                                                                                                                                                                                                                 |
| Polymer Types         | Polyphenylene Ether + PS (PPE+PS)                                                                                                                                                                                                                            |
| Processing Techniques | Injection Molding                                                                                                                                                                                                                                            |

### INDUSTRY

Building and Construction  
Consumer  
Electrical and Electronics  
Industrial

### SUB INDUSTRY

Building Component  
Home Appliances, Commercial Appliance  
Electronic Components, Mobile Phone - Computer - Tablets  
Electrical, Defense

## TYPICAL PROPERTY VALUES

Revision 20231109

| PROPERTIES                                  | TYPICAL VALUES | UNITS             | TEST METHODS |
|---------------------------------------------|----------------|-------------------|--------------|
| <b>MECHANICAL <sup>(1)</sup></b>            |                |                   |              |
| Tensile Stress, yield, 50 mm/min            | 55             | MPa               | ISO 527      |
| Tensile Stress, break, 50 mm/min            | 45             | MPa               | ISO 527      |
| Tensile Strain, yield, 50 mm/min            | 4              | %                 | ISO 527      |
| Tensile Strain, break, 50 mm/min            | 10             | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                   | 2400           | MPa               | ISO 527      |
| Flexural Stress, yield, 2 mm/min            | 70             | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                  | 2100           | MPa               | ISO 178      |
| Ball Indentation Hardness, H358/30          | 95             | MPa               | ISO 2039-1   |
| <b>IMPACT <sup>(1)</sup></b>                |                |                   |              |
| Izod Impact, notched 80*10*4 +23°C          | 12             | kJ/m <sup>2</sup> | ISO 180/1A   |
| Izod Impact, notched 80*10*4 -30°C          | 7              | kJ/m <sup>2</sup> | ISO 180/1A   |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm  | 11             | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm | 7              | kJ/m <sup>2</sup> | ISO 179/1eA  |
| <b>THERMAL <sup>(1)</sup></b>               |                |                   |              |
| 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                    | 9.E-05         | 1/°C              | ISO 11359-2  |

| PROPERTIES                                                   | TYPICAL VALUES | UNITS                   | TEST METHODS   |
|--------------------------------------------------------------|----------------|-------------------------|----------------|
| Ball Pressure Test, 125°C +/- 2°C                            | PASSES         | -                       | IEC 60695-10-2 |
| Ball Pressure Test, approximate maximum                      | 125            | °C                      | IEC 60695-10-2 |
| Vicat Softening Temp, Rate A/50                              | 135            | °C                      | ISO 306        |
| Vicat Softening Temp, Rate B/50                              | 125            | °C                      | ISO 306        |
| Vicat Softening Temp, Rate B/120                             | 130            | °C                      | ISO 306        |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm                      | 125            | °C                      | ISO 75/Be      |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm                      | 110            | °C                      | ISO 75/Ae      |
| <b>PHYSICAL <sup>(1)</sup></b>                               |                |                         |                |
| Mold Shrinkage on Tensile Bar, flow <sup>(2)</sup>           | 0.5 – 0.7      | %                       | SABIC method   |
| Density                                                      | 1.1            | g/cm <sup>3</sup>       | ISO 1183       |
| Water Absorption, (23°C/saturated)                           | 0.2            | %                       | ISO 62-1       |
| Moisture Absorption (23°C / 50% RH)                          | 0.06           | %                       | ISO 62         |
| Melt Volume Rate, MVR at 280°C/5.0 kg                        | 10             | cm <sup>3</sup> /10 min | ISO 1133       |
| <b>ELECTRICAL <sup>(1)</sup></b>                             |                |                         |                |
| Volume Resistivity                                           | 1.E+15         | Ω.cm                    | IEC 60093      |
| Surface Resistivity, ROA                                     | >1.E+15        | Ω                       | IEC 60093      |
| Dielectric Strength, in oil, 0.8 mm                          | 33             | kV/mm                   | IEC 60243-1    |
| Dielectric Strength, in oil, 1.6 mm                          | 26             | kV/mm                   | IEC 60243-1    |
| Dielectric Strength, in oil, 3.2 mm                          | 16             | kV/mm                   | IEC 60243-1    |
| Relative Permittivity, 1 MHz                                 | 2.6            | -                       | IEC 60250      |
| Dissipation Factor, 50/60 Hz                                 | 0.007          | -                       | IEC 60250      |
| Dissipation Factor, 1 MHz                                    | 0.003          | -                       | IEC 60250      |
| Relative Permittivity, 50/60 Hz                              | 2.7            | -                       | IEC 60250      |
| <b>FLAME CHARACTERISTICS <sup>(3)</sup></b>                  |                |                         |                |
| Glow Wire Flammability Index 960°C, passes at <sup>(4)</sup> | 3.2            | mm                      | IEC 60695-2-12 |
| Oxygen Index (LOI)                                           | 36             | %                       | ISO 4589       |
| <b>INJECTION MOLDING <sup>(5)</sup></b>                      |                |                         |                |
| Drying Temperature                                           | 80 – 100       | °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                                             | 90 – 120       | °C                      |                |

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

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

(5) 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.



#### ADDITIONAL PRODUCT NOTES

No PFAS intentionally added: The grade listed in this document does not contain PFAS intentionally added during Seller's manufacturing process and is not expected to contain unintentional PFAS impurities. Each user is responsible for evaluating the presence of unintentional PFAS impurities.

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