

# FLEX NORYL™ RESIN WCP921

REGION ASIA

## DESCRIPTION

FLEX NORYL WCP921 resin is a high flow, flexible, non-reinforced injection moldable blend of Polyphenylene Ether (PPE) + Styrene Ethylene Butylene Styrene (SEBS) + Polyolefin. This material contains non-halogenated flame retardant and carries a UL94 flame rating of V0 at 6mm. FLEX NORYL WCP921 resin is intended for evaluation in over-molding applications such as plugs, strain reliefs, and connectors. It has a Shore A Hardness reading of 88 and exhibits low specific gravity, very low water absorption, and dimensional stability.

| GENERAL INFORMATION   |                                                                                                                                                                                                                                                                                                |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Features              | Flame Retardant, Good Processability, Hydrolytic Stability, Low Warpage, Thin Wall, Flexible, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Creep resistant, Dimensional stability, Impact resistant, No PFAS intentionally added |
| Fillers               | Unreinforced                                                                                                                                                                                                                                                                                   |
| Polymer Types         | Polyphenylene Ether + TPE (PPE+TPE)                                                                                                                                                                                                                                                            |
| Processing Techniques | Injection Molding                                                                                                                                                                                                                                                                              |

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

## TYPICAL PROPERTY VALUES

Revision 20231109

| PROPERTIES                                   | TYPICAL VALUES | UNITS    | TEST METHODS |
|----------------------------------------------|----------------|----------|--------------|
| <b>MECHANICAL <sup>(1)</sup></b>             |                |          |              |
| Tensile Stress, brk, Type I, 50 mm/min       | 15             | MPa      | ASTM D638    |
| Tensile Strain, brk, Type I, 50 mm/min       | 150            | %        | ASTM D638    |
| Flexural Modulus, 12.5 mm/min, 100 mm span   | 180            | MPa      | ASTM D790    |
| Hardness, Shore A, 30S reading               | 88             | -        | ASTM D2240   |
| Tensile Stress, break, 50 mm/min             | 15             | MPa      | ISO 527      |
| Tensile Strain, break, 50 mm/min             | 140            | %        | ISO 527      |
| Flexural Modulus, 12.5 mm/min                | 200            | MPa      | ISO 178      |
| <b>IMPACT <sup>(1)</sup></b>                 |                |          |              |
| Brittleness Temperature                      | <-40           | °C       | ASTM D746    |
| <b>PHYSICAL <sup>(1)</sup></b>               |                |          |              |
| Specific Gravity                             | 1.04           | -        | ASTM D792    |
| Water Absorption, (23°C/48hrs)               | 0.06           | %        | ASTM D570    |
| Mold Shrinkage, flow, 24 hrs <sup>(2)</sup>  | 0.55           | %        | ASTM D955    |
| Mold Shrinkage, xflow, 24 hrs <sup>(2)</sup> | 0.65           | %        | ASTM D955    |
| Melt Flow Rate, 210°C/5 kgf                  | 15             | g/10 min | ASTM D1238   |
| Melt Flow Rate, 250°C/2.16 kgf               | 17             | g/10 min | ASTM D1238   |
| <b>ELECTRICAL <sup>(1)</sup></b>             |                |          |              |
| Volume Resistivity                           | 7.1E+15        | Ω.cm     | ASTM D257    |
| Dielectric strength in oil, 2.0mm            | 25             | kV/mm    | IEC 60243-1  |

| PROPERTIES                                                   | TYPICAL VALUES                    | UNITS    | TEST METHODS   |
|--------------------------------------------------------------|-----------------------------------|----------|----------------|
| Relative Permittivity, 1 MHz                                 | 2.8                               | -        | IEC 60250      |
| Dissipation Factor, 1 MHz                                    | 0.029                             | -        | IEC 60250      |
| Comparative Tracking Index <sup>(3)</sup>                    | 600                               | V        | IEC 60112      |
| Comparative Tracking Index (UL) {PLC}                        | 0                                 | PLC Code | UL 746A        |
| Hot-Wire Ignition (HWI), PLC 1                               | ≥3                                | mm       | UL 746A        |
| <b>FLAME CHARACTERISTICS <sup>(4)</sup></b>                  |                                   |          |                |
| UL Yellow Card Link                                          | <a href="#">E207780-100123574</a> | -        | -              |
| UL Recognized, 94HB Flame Class Rating                       | ≥1                                | mm       | UL 94          |
| UL Recognized, 94V-0 Flame Class Rating                      | ≥6                                | mm       | UL 94          |
| Glow Wire Flammability Index 850°C, passes at <sup>(3)</sup> | 3                                 | mm       | IEC 60695-2-12 |
| Glow Wire Ignitability Temperature, 3.0 mm <sup>(3)</sup>    | 725                               | °C       | IEC 60695-2-13 |
| Oxygen Index (LOI)                                           | 24                                | %        | ISO 4589       |
| <b>INJECTION MOLDING <sup>(5)</sup></b>                      |                                   |          |                |
| Drying Temperature                                           | 60 – 80                           | °C       |                |
| Drying Time                                                  | 4 – 6                             | Hrs      |                |
| Drying Time (Cumulative)                                     | 8                                 | Hrs      |                |
| Maximum Moisture Content                                     | 0.01                              | %        |                |
| Melt Temperature                                             | 220 – 250                         | °C       |                |
| Nozzle Temperature                                           | 220 – 250                         | °C       |                |
| Front - Zone 3 Temperature                                   | 220 – 250                         | °C       |                |
| Middle - Zone 2 Temperature                                  | 210 – 240                         | °C       |                |
| Rear - Zone 1 Temperature                                    | 180 – 220                         | °C       |                |
| Mold Temperature                                             | 40 – 60                           | °C       |                |
| Back Pressure                                                | 3 – 10                            | MPa      |                |
| Screw Speed                                                  | 30 – 80                           | rpm      |                |
| Shot to Cylinder Size                                        | 30 – 70                           | %        |                |
| Vent Depth                                                   | 0.03 – 0.05                       | mm       |                |

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