# FLEX NORYL™ RESIN WCD801A

REGION AMERICAS

## DESCRIPTION

FLEX NORYL™ WCD801A resin is a flexible, non-reinforced, migration improved, extrudable blend of Polyphenylene Ether (PPE) + Thermoplastic Elastomer (TPE). This material contains non-halogenated flame retardant and performance capable of meeting UL VW-1 requirements, 80C end use temperature rating, and heat deformation performance as defined by UL 1581. FLEX NORYL WCD801A resin is intended for evaluation in wire insulation and cable jacket applications in dark colors. It has a Shore A Hardness reading of 80 and exhibits superior thermal stability, very low water absorption, good electric properties, and low specific gravity. Processing is typically conducted on standard extrusion equipment, and UL 1581 testing is conducted on 2.0mm wire with 0.12mm X 20 stranded copper conductor.

## TYPICAL PROPERTY VALUES

Revision 20190717

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| MECHANICAL | | | |
| Tensile Stress, brk, Type I, 50 mm/min | 12 | MPa | ASTM D 638 |
| Tensile Strain, brk, Type I, 5 mm/min | 120 | % | ASTM D 638 |
| Flexural Modulus, 12.5 mm/min, 100 mm span | 80 | MPa | ASTM D 790 |
| Hardness, Shore A, 30S reading | 80 | - | ASTM D 2240 |
| Tensile Stress, break, 50 mm/min | 13 | MPa | ISO 527 |
| Tensile Strain, break, 50 mm/min | 119 | % | ISO 527 |
| Flexural Modulus, 12.5 mm/min | 90 | MPa | ISO 178 |
| IMPACT | | | |
| Brittleness Temperature | <-40 | °C | ASTM D 746 |
| PHYSICAL | | | |
| Specific Gravity | 1.1 | - | ASTM D 792 |
| Melt Flow Rate, 250°C/5.0 kgf | 11 | g/10 min | ASTM D 1238 |
| ELECTRICAL | | | |
| Volume Resistivity | 3.8E+15 | Ohm-cm | IEC 60093 |
| Dielectric strength in oil, 2.0mm | 23 | kV/mm | IEC 60243-1 |
| Relative Permittivity, 1 MHz | 2.8 | - | IEC 60250 |
| Dissipation Factor, 50/60 Hz | 0.03 | - | IEC 60250 |
| Dissipation Factor, 1 MHz | 0.004 | - | IEC 60250 |
| Comparative Tracking Index [1] | 600 | V | IEC 60112 |
| Relative Permittivity, 50/60 Hz | 2.8 | - | IEC 60250 |
| FLAME CHARACTERISTICS [2] | | | |
| Smoke Density on 0.5mm plaque, Non-flame, Ds, max | 95 | - | ASTM E 662 |
| Smoke Density on 0.5mm plaque, Flame, Ds, max | 142 | - | ASTM E 662 |
| Oxygen Index (LOI) | 26 | % | ISO 4589 |
| WIRE AND CABLE - UL 1581 TESTED ON 2.0MM WIRE WITH 0.12MMX20 STRANDED COPPER | | | |
| Tensile strength @ break | 16 | MPa | UL 1581 |
| Tensile elongation @ break | 205 | % | UL 1581 |
| Tensile strength @ break after 7days @113°C | 17 | MPa | UL 1581 |
| Tensile elongation @ break after 7days @113°C | 145 | % | UL 1581 |
| UL temperature rating | 80 | °C | UL 1581 |
| Heat Deformation at 100°C/250g | 16 | % | UL 1581 |

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| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| VW-1 | Pass | - | UL 1581 |
| WIRE COATING EXTRUSION | | | |
| Drying Temperature | 75 – 85 | °C | |
| Drying Time | 5 – 7 | hrs | |
| Drying Time (Cumulative) | 12 | hrs | |
| Maximum Moisture Content | 0.02 | % | |
| Extruder Length/Diameter Ratio (L/D) | 22:1 to 26:1 | - | |
| Screw Speed | 15 – 85 | rpm | |
| Feed Zone Temperature | 180 – 220 | °C | |
| Middle Zone Temperatures | 220 – 250 | °C | |
| Head Zone Temperature | 220 – 250 | °C | |
| Neck Temperature | 220 – 250 | °C | |
| Cross-head Temperature | 220 – 250 | °C | |
| Die Temperature | 220 – 250 | °C | |
| Melt Temperature | 220 – 250 | °C | |
| Conductor Pre-heat Temperature | 25 – 120 | °C | |
| Screen Pack | 150 – 100 | - | |
| Cooling Water Air Gap | 100 – 200 | mm | |
| Water Bath Temperature | 15 – 60 | °C | |

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

(2) 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.

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