# FLEX NORYL™ RESIN WCD891B

REGION EUROPE

## DESCRIPTION

FLEX NORYL WCD891B resin is a flexible, non-reinforced 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 WCD891B resin is intended for evaluation in wire and cable applications in dark colors. It has a Shore A Hardness reading of 89 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.

| 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** | Wire Coating Extrusion |

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

## TYPICAL PROPERTY VALUES

Revision 20260716

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| **MECHANICAL** [1] | | | |
| **Tensile Stress, brk, Type I, 50 mm/min** | 16 | MPa | ASTM D638 |
| **Tensile Strain, brk, Type I, 50 mm/min** | 170 | % | ASTM D638 |
| **Flexural Modulus** | | | |
| 12.5 mm/min, 100 mm span | 160 | MPa | ASTM D790 |
| 12.5 mm/min | 140 | MPa | ISO 178 |
| **Hardness, Shore A, 30S reading** | 89 | - | ASTM D2240 |
| **Tensile Stress, break, 50 mm/min** | 15 | MPa | ISO 527 |
| **Tensile Strain, yield, 50 mm/min** | 140 | % | ISO 527 |
| **Tear strength** | 7 | N/mm | ISO 6383 |
| **IMPACT** [1] | | | |
| **Brittleness Temperature** | <-40 | °C | ASTM D746 |
| **PHYSICAL** [1] | | | |
| **Specific Gravity** | 1.1 | - | ASTM D792 |
| **Melt Flow Rate, 250°C/5.0 kgf** | 20 | g/10 min | ASTM D1238 |
| **ELECTRICAL** [1] | | | |
| **Volume Resistivity** | 1.5E+15 | Ω.cm | ASTM D257 |
| **Surface Resistivity** | 5.1E+15 | Ω | ASTM D257 |
| **Dielectric strength in oil, 2.0mm** | 24 | kV/mm | IEC 60243-1 |

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| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| Relative Permittivity, 1 MHz | 2.9 | - | IEC 60250 |
| Dissipation Factor, 1 MHz | 0.04 | - | IEC 60250 |
| Comparative Tracking Index [2] | 600 | V | IEC 60112 |
| FLAME CHARACTERISTICS [3] | | | |
| Oxygen Index (LOI) | 27 | % | ISO 4589 |
| WIRE AND CABLE - UL 1581 TESTED ON 2.0MM WIRE WITH 0.12MMX20 STRANDED COPPER | | | |
| Tensile strength @ break | 18 | MPa | UL 1581 |
| Tensile elongation @ break | 215 | % | UL 1581 |
| Tensile strength @ break after 7days @113°C | 21 | MPa | UL 1581 |
| Tensile elongation @ break after 7days @113°C | 160 | % | UL 1581 |
| UL temperature rating | 80 | °C | UL 1581 |
| Heat Deformation at 100°C/250g | 9 | % | UL 1581 |
| 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) 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) Value shown here is based on internal measurement.

(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.

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