

FLEX NORYL™ RESIN WCD933

REGION ASIA

DESCRIPTION

FLEX NORYL WCD933 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 EN 50265-2-1 requirement. FLEX NORYL WCD795 resin is intended for evaluation in AC cable insulation applications such as HD 21.14 flexible cables. It has a Shore A Hardness reading of 93 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, Flexible, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Creep resistant, Dimensional stability, 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 20231109

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|--|----------------|----------|--------------|
| MECHANICAL ⁽¹⁾ | | | |
| Tensile Stress, brk, Type I, 50 mm/min | 9 | MPa | ASTM D638 |
| Tensile Strain, brk, Type I, 50 mm/min | 130 | % | ASTM D638 |
| Flexural Modulus, 12.5 mm/min, 100 mm span | 160 | MPa | ASTM D790 |
| Hardness, Shore A, 30S reading | 93 | - | ASTM D2240 |
| Tensile Stress, break, 50 mm/min | 9 | MPa | ISO 527 |
| Tensile Strain, break, 50 mm/min | 175 | % | ISO 527 |
| Flexural Modulus, 12.5 mm/min | 130 | MPa | ISO 178 |
| IMPACT ⁽¹⁾ | | | |
| Brittleness Temperature | <-40 | °C | ASTM D746 |
| PHYSICAL ⁽¹⁾ | | | |
| Specific Gravity | 1.33 | - | ASTM D792 |
| Melt Flow Rate, 250°C/ 10.0 kgf | 8.5 | g/10 min | ASTM D1238 |
| ELECTRICAL ⁽¹⁾ | | | |
| Volume Resistivity | 2.E+15 | Ω.cm | ASTM D257 |
| Relative Permittivity, 1 MHz | 3 | - | ASTM D150 |
| Dissipation Factor, 1 MHz | 0.001 | - | ASTM D150 |
| Dielectric strength in oil, 2.0mm | 22.9 | kV/mm | IEC 60243-1 |
| Comparative Tracking Index | 600 | V | IEC 60112 |

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|----------------|-------|----------------|
| FLAME CHARACTERISTICS | | | |
| Smoke Density on 0.5mm plaque, Non-flame, Ds, max | 152 | - | ASTM E662 |
| Smoke Density on 0.5mm plaque, Flame, Ds, max | 56 | - | ASTM E662 |
| Glow Wire Flammability Index 750°C, passes at | 3 | mm | IEC 60695-2-12 |
| Glow Wire Ignitability Temperature, 3.0 mm | 775 | °C | IEC 60695-2-13 |
| Oxygen Index (LOI) | 29 | % | ISO 4589 |
| WIRE AND CABLE - UL 1581 TESTED ON 2.0MM WIRE WITH 0.12MMX20 STRANDED COPPER | | | |
| Tensile strength @ break | 15 | MPa | UL 1581 |
| Tensile elongation @ break | 306 | % | UL 1581 |
| Tensile strength @ break after 7days @80°C | 15 | MPa | UL 1581 |
| Tensile elongation @ break after 7days @80°C | 267 | % | UL 1581 |
| Heat Deformation at 100°C/250g | 10 | % | UL 1581 |
| Vertical Flame Test | PASSES | - | EN 50265-2-1 |
| 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.

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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