

# FLEX NORYL™ RESIN WCA955

REGION AMERICAS

## DESCRIPTION

FLEX NORYL WCA955 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, 105C end use temperature rating, and heat deformation performance as defined by UL 1581. FLEX NORYL WCA955 resin is intended for evaluation in wire insulation, especially internal wire applications in dark colors. It has a Shore A Hardness reading of 95 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 and is also targeted for coating AWG26 and AWG28 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 20241016

| 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  | 160            | %        | ASTM D638      |
| Flexural Modulus, 12.5 mm/min, 100 mm span  | 150            | MPa      | ASTM D790      |
| Hardness, Shore A, 30S reading  | 95             | -        | ASTM D2240     |
| Tensile Stress, break, 50 mm/min  | 15             | MPa      | ISO 527        |
| Tensile Strain, break, 50 mm/min  | 160            | %        | ISO 527        |
| Flexural Modulus, 12.5 mm/min   | 140            | MPa      | ISO 178        |
| <b>PHYSICAL <sup>(1)</sup></b>  |                |          |                |
| Specific Gravity  | 1.02           | -        | ASTM D792      |
| Melt Flow Rate, 250°C/10.0 kgf  | 8              | g/10 min | ASTM D1238     |
| <b>ELECTRICAL <sup>(1)</sup></b>  |                |          |                |
| Volume Resistivity  | 2.4E+16        | Ω.cm     | IEC 60093      |
| Comparative Tracking Index  | 600            | V        | IEC 60112      |
| <b>FLAME CHARACTERISTICS</b>  |                |          |                |
| Glow Wire Flammability Index 750°C, passes at                                       | 3              | mm       | IEC 60695-2-12 |
| Glow Wire Ignitability Temperature, 3.0 mm  | 725            | °C       | IEC 60695-2-13 |
| <b>WIRE AND CABLE - UL 1581 TESTED ON 2.0MM WIRE WITH 0.12MMX20 STRANDED COPPER</b> |                |          |                |
| Tensile strength @ break  | 27             | MPa      | UL 1581        |

| PROPERTIES                                    | TYPICAL VALUES | UNITS | TEST METHODS |
|---|----------------|-------|--------------|
| Tensile elongation @ break                    | 250            | %     | UL 1581      |
| Tensile strength @ break after 7days @136°C   | 27             | MPa   | UL 1581      |
| Tensile elongation @ break after 7days @136°C | 180            | %     | UL 1581      |
| UL temperature rating                         | 105            | °C    | UL 1581      |
| Heat Deformation at 121°C/250g                | 4              | %     | UL 1581      |
| VW-1  | Pass           | -     | UL 1581      |
| <b>WIRE COATING EXTRUSION</b>                 |                |       |              |
| 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.

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