



**NORYL™ Resin WCD815U**  
**Asia Pacific: COMMERCIAL**

Flexible, Ultra-violet stabilized and non-halogenated flame retardant extrusion grade intended for applications such as cable jacket in compliance with UL62. Flame retardant performance capable of meeting UL 1581 VW-1 requirement. 90C temperature rating as defined by UL 62 TPE category. Processing typically conducted on standard extrusion equipment. UL 1581 tests conducted on 2.0 mm wire with 0.12 mm x 20 stranded copper conductor.

| TYPICAL PROPERTIES <sup>1</sup>                                                     | TYPICAL VALUE | Unit                | Standard       |
|-------------------------------------------------------------------------------------|---------------|---------------------|----------------|
| <b>MECHANICAL</b>                                                                   |               |                     |                |
| Tensile Stress, brk, Type I, 50 mm/min                                              | 150           | kgf/cm <sup>2</sup> | ASTM D 638     |
| Tensile Strain, brk, Type I, 50 mm/min                                              | 245           | %                   | ASTM D 638     |
| Flexural Modulus, 12.5 mm/min, 100 mm span                                          | 200           | kgf/cm <sup>2</sup> | ASTM D 790     |
| Hardness, Shore A, 30S reading                                                      | 81            | -                   | ASTM D 2240    |
| Tensile Stress, break, 50 mm/min                                                    | 17            | MPa                 | ISO 527        |
| Tensile Strain, break, 50 mm/min                                                    | 260           | %                   | ISO 527        |
| Flexural Modulus, 12.5 mm/min                                                       | 20            | MPa                 | ISO 178        |
| <b>PHYSICAL</b>                                                                     |               |                     |                |
| Specific Gravity                                                                    | 1.03          | -                   | ASTM D 792     |
| Melt Flow Rate, 250°C/10.0 kgf                                                      | 10            | g/10 min            | ASTM D 1238    |
| <b>ELECTRICAL</b>                                                                   |               |                     |                |
| Volume Resistivity                                                                  | 5.1E+15       | Ohm-cm              | ASTM D 257     |
| Surface Resistivity                                                                 | 1.6E+16       | Ohm                 | ASTM D 257     |
| Dielectric Strength in oil, 2.0mm                                                   | 25            | kV/mm               | ASTM D 149     |
| Comparative Tracking Index                                                          | 600           | V                   | IEC 60112      |
| Dielectric Constant, 5 GHz                                                          | 2.6           | -                   | SABIC Method   |
| Dissipation Factor, 5 GHz                                                           | 0.002         | -                   | SABIC Method   |
| <b>FLAME CHARACTERISTICS</b>                                                        |               |                     |                |
| Smoke Density on 0.5mm plaque, Non-flame, Ds, max                                   | 166           | -                   | ASTM E 662     |
| Smoke Density on 0.5mm plaque, Flame, Ds, max                                       | 117           | -                   | ASTM E 662     |
| Glow Wire Flammability Index 850°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)                                                                  | 27            | %                   | ISO 4589       |
| <b>WIRE AND CABLE - UL 1581 tested on 2.0mm wire with 0.12mmx20 stranded copper</b> |               |                     |                |
| Tensile strength @ break                                                            | 22            | MPa                 | UL 1581        |



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| <b>WIRE AND CABLE - UL 1581 tested on 2.0mm wire with 0.12mmx20 stranded copper</b> |               |      |          |
| Tensile elongation @ break                                                          | 330           | %    | UL 1581  |
| Tensile strength @ break after 7days @136°C                                         | 23            | MPa  | UL 1581  |
| Tensile elongation @ break after 7days @136°C                                       | 290           | %    | UL 1581  |
| Heat Deformation at 121°C/250g                                                      | 10            | %    | UL 1581  |
| VW-1                                                                                | Pass          | -    | UL 1581  |



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| PROCESSING PARAMETERS                | TYPICAL VALUE | Unit |
|--------------------------------------|---------------|------|
| <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   |

• NOTE: Recommended Drying Parameters are based on usage of Dehumidify Drying / Drying Oven.