

# LNPT<sup>™</sup> ELCRIN<sup>™</sup> EXL9134B

## DESCRIPTION

ELCRIN EXL9134B polycarbonate (PC) siloxane copolymer resin is a UV stabilized high flow opaque injection molding (IM) grade with major component synthesized from Bio source. This resin offers UL94 V0 @1.5mm flame retardancy based on non-bromine, non-chlorine FR systems, extreme low temperature ductility (-35°C) characteristics and excellent processability with opportunities for shorter IM cycle times compared to standard PC. ELCRIN EXL9134B resin is a product available in a wide range of opaque colors and may be an excellent candidate for a wide range of applications.

| GENERAL INFORMATION   |   |
|-----------------------|---|
| Features              | Flame Retardant, Good Processability, Non Cl/Br flame retardant, Low temperature impact |
| Fillers               | Unreinforced  |
| Polymer Types         | Polycarbonate (PC)  |
| Processing Techniques | Injection Molding   |

  

| INDUSTRY                   | SUB INDUSTRY                        |
|----------------------------|-------------------------------------|
| Consumer                   | Personal Accessory, Home Appliances |
| Electrical and Electronics | Mobile Phone - Computer - Tablets   |
| Industrial                 | Electrical                          |

## TYPICAL PROPERTY VALUES

Revision 20231109

| PROPERTIES                                | TYPICAL VALUES | UNITS             | TEST METHODS |
|---|----------------|-------------------|--------------|
| <b>MECHANICAL <sup>(1)</sup></b>          |                |                   |              |
| Tensile Stress, yld, Type I, 50 mm/min    | 58             | MPa               | ASTM D638    |
| Tensile Stress, brk, Type I, 50 mm/min    | 59             | MPa               | ASTM D638    |
| Tensile Strain, yld, Type I, 50 mm/min    | 6              | %                 | ASTM D638    |
| Tensile Strain, brk, Type I, 50 mm/min    | 115            | %                 | ASTM D638    |
| Tensile Modulus, 5 mm/min                 | 2100           | MPa               | ASTM D638    |
| Flexural Strength, 1.3 mm/min, 50 mm span | 92             | MPa               | ASTM D790    |
| Flexural Modulus, 1.3 mm/min, 50 mm span  | 2400           | MPa               | ASTM D790    |
| Tensile Stress, yield, 50 mm/min          | 56             | MPa               | ISO 527      |
| Tensile Stress, break, 50 mm/min          | 57             | MPa               | ISO 527      |
| Tensile Strain, yield, 50 mm/min          | 6              | %                 | ISO 527      |
| Tensile Strain, break, 50 mm/min          | 108            | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                 | 2000           | MPa               | ISO 527      |
| Flexural Strength, 2 mm/min               | 87             | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                | 2100           | MPa               | ISO 178      |
| <b>IMPACT <sup>(1)</sup></b>              |                |                   |              |
| Izod Impact, notched, 23°C                | 785            | J/m               | ASTM D256    |
| Izod Impact, notched, -30°C               | 655            | J/m               | ASTM D256    |
| Izod Impact, notched, -40°C               | 380            | J/m               | ASTM D256    |
| Izod Impact, notched 80*10*3 +23°C        | 65             | kJ/m <sup>2</sup> | ISO 180/1A   |
| Izod Impact, notched 80*10*3 -30°C        | 30             | kJ/m <sup>2</sup> | ISO 180/1A   |
| Izod Impact, unnotched 80*10*3 +23°C      | NB             | kJ/m <sup>2</sup> | ISO 180/1U   |

| PROPERTIES  | TYPICAL VALUES                    | UNITS                   | TEST METHODS   |
|---|-----------------------------------|-------------------------|----------------|
| Izod Impact, unnotched 80*10*3 -30°C                    | NB                                | kJ/m <sup>2</sup>       | ISO 180/1U     |
| Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm              | 70                                | kJ/m <sup>2</sup>       | ISO 179/1eA    |
| Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm             | 35                                | kJ/m <sup>2</sup>       | ISO 179/1eA    |
| Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm              | NB                                | kJ/m <sup>2</sup>       | ISO 179/1eU    |
| Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm             | NB                                | kJ/m <sup>2</sup>       | ISO 179/1eU    |
| Instrumented Dart Impact Total Energy, 23°C             | 67                                | J                       | ASTM D3763     |
| <b>THERMAL <sup>(1)</sup></b>                           |                                   |                         |                |
| HDT, 1.82 MPa, 3.2mm, unannealed                        | 123                               | °C                      | ASTM D648      |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm                   | 118                               | °C                      | ISO 75/Af      |
| CTE, -40°C to 40°C, flow                                | 6.1E-05                           | 1/°C                    | ASTM E831      |
| CTE, -40°C to 40°C, xflow                               | 6.2E-05                           | 1/°C                    | ASTM E831      |
| CTE, -40°C to 40°C, flow                                | 6.1E-05                           | 1/°C                    | ISO 11359-2    |
| CTE, -40°C to 40°C, xflow                               | 6.2E-05                           | 1/°C                    | ISO 11359-2    |
| Vicat Softening Temp, Rate B/50                         | 140                               | °C                      | ASTM D1525     |
| Vicat Softening Temp, Rate B/50                         | 139                               | °C                      | ISO 306        |
| Vicat Softening Temp, Rate B/120                        | 141                               | °C                      | ISO 306        |
| Relative Temp Index, Elec <sup>(2)</sup>                | 125                               | °C                      | UL 746B        |
| Relative Temp Index, Mech w/impact <sup>(2)</sup>       | 115                               | °C                      | UL 746B        |
| Relative Temp Index, Mech w/o impact <sup>(2)</sup>     | 125                               | °C                      | UL 746B        |
| <b>PHYSICAL <sup>(1)</sup></b>                          |                                   |                         |                |
| Specific Gravity  | 1.19                              | -                       | ASTM D792      |
| Density   | 1.19                              | g/cm <sup>3</sup>       | ISO 1183       |
| Water Absorption, (23°C/saturated)                      | 0.4                               | %                       | ISO 62-1       |
| Moisture Absorption (23°C / 50% RH)                     | 0.15                              | %                       | ISO 62         |
| Melt Flow Rate, 300°C/1.2 kgf                           | 16                                | g/10 min                | ASTM D1238     |
| Melt Volume Rate, MVR at 300°C/1.2 kg                   | 15                                | cm <sup>3</sup> /10 min | ISO 1133       |
| Mold Shrinkage, flow, 3.2 mm <sup>(3)</sup>             | 0.4 – 0.8                         | %                       | SABIC method   |
| <b>ELECTRICAL <sup>(2)</sup></b>                        |                                   |                         |                |
| Comparative Tracking Index (UL) {PLC}                   | 3                                 | PLC Code                | UL 746A        |
| Hot-Wire Ignition (HWI), PLC 2                          | ≥3.0                              | mm                      | UL 746A        |
| Hot-Wire Ignition (HWI), PLC 3                          | ≥0.75                             | mm                      | UL 746A        |
| High Amp Arc Ignition (HAI), PLC 0                      | ≥3.0                              | mm                      | UL 746A        |
| High Amp Arc Ignition (HAI), PLC 1                      | ≥0.75                             | mm                      | UL 746A        |
| <b>FLAME CHARACTERISTICS <sup>(1)</sup></b>             |                                   |                         |                |
| UL Yellow Card Link <sup>(2)</sup>                      | <a href="#">E207780-101110005</a> | -                       | -              |
| UL Recognized, 94-5VA Flame Class Rating <sup>(2)</sup> | ≥3.0                              | mm                      | UL 94          |
| UL Recognized, 94V-0 Flame Class Rating <sup>(2)</sup>  | ≥1.5                              | mm                      | UL 94          |
| UV-light, water exposure/immersion <sup>(2)</sup>       | f1                                | -                       | UL 746C        |
| Glow Wire Ignitability Temperature, 1.5 mm              | 825                               | °C                      | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 3.0 mm              | 825                               | °C                      | IEC 60695-2-13 |
| Glow Wire Flammability Index, 1.5 mm                    | 960                               | °C                      | IEC 60695-2-12 |
| Glow Wire Flammability Index, 3.0 mm                    | 960                               | °C                      | IEC 60695-2-12 |
| Glow Wire Flammability Index 960°C, passes at           | ≥1.5                              | mm                      | IEC 60695-2-12 |
| <b>INJECTION MOLDING <sup>(4)</sup></b>                 |                                   |                         |                |
| Drying Temperature                                      | 120                               | °C                      |                |

| PROPERTIES                  | TYPICAL VALUES | UNITS | TEST METHODS |
|-----------------------------|----------------|-------|--------------|
| Drying Time                 | 3 – 4          | Hrs   |              |
| Drying Time (Cumulative)    | 48             | Hrs   |              |
| Maximum Moisture Content    | 0.02           | %     |              |
| Melt Temperature            | 295 – 315      | °C    |              |
| Nozzle Temperature          | 290 – 310      | °C    |              |
| Front - Zone 3 Temperature  | 295 – 315      | °C    |              |
| Middle - Zone 2 Temperature | 280 – 305      | °C    |              |
| Rear - Zone 1 Temperature   | 270 – 295      | °C    |              |
| Mold Temperature            | 70 – 95        | °C    |              |
| Back Pressure               | 0.3 – 0.7      | MPa   |              |
| Screw Speed                 | 40 – 70        | rpm   |              |

- (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) 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.
- (3) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.
- (4) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.

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