

# LEXAN™ COPOLYMER EXL9414T

REGION ASIA

## DESCRIPTION

LEXAN EXL9414T resin grade is a halogen-free flame retardant polycarbonate featuring transparency, -40 degree C ductility and UL-94 V0 rating for injection molding applications. Excellent impact combined with good flow, all transparent colorability for aesthetics and thin wall flame retradancy makes this product an excellent candidate for thin wall applications.

## TYPICAL PROPERTY VALUES

Revision 20200226

| PROPERTIES                                   | TYPICAL VALUES | UNITS             | TEST METHODS |
|--|----------------|-------------------|--------------|
| <b>MECHANICAL</b>                            |                |                   |              |
| Tensile Stress, yld, Type I, 50 mm/min       | 57             | MPa               | ASTM D 638   |
| Tensile Stress, brk, Type I, 50 mm/min       | 59             | MPa               | ASTM D 638   |
| Tensile Strain, yld, Type I, 50 mm/min       | 5.6            | %                 | ASTM D 638   |
| Tensile Strain, brk, Type I, 50 mm/min       | 123.9          | %                 | ASTM D 638   |
| Tensile Modulus, 50 mm/min                   | 2180           | MPa               | ASTM D 638   |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 92             | MPa               | ASTM D 790   |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 2180           | MPa               | ASTM D 790   |
| Tensile Stress, yield, 50 mm/min             | 56             | MPa               | ISO 527      |
| Tensile Stress, break, 50 mm/min             | 55             | MPa               | ISO 527      |
| Tensile Strain, yield, 50 mm/min             | 5.4            | %                 | ISO 527      |
| Tensile Strain, break, 50 mm/min             | 108            | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                    | 2300           | MPa               | ISO 527      |
| Flexural Stress, yield, 2 mm/min             | 88             | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                   | 2120           | MPa               | ISO 178      |
| <b>IMPACT</b>                                |                |                   |              |
| Izod Impact, notched, 23°C                   | 824            | J/m               | ASTM D 256   |
| Izod Impact, notched, -30°C                  | 712            | J/m               | ASTM D 256   |
| Instrumented Impact Total Energy, 23°C       | 75             | J                 | ASTM D 3763  |
| Izod Impact, unnotched 80*10*3 +23°C         | NB             | kJ/m <sup>2</sup> | ISO 180/1U   |
| Izod Impact, unnotched 80*10*3 -30°C         | NB             | kJ/m <sup>2</sup> | ISO 180/1U   |
| 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           | 55             | kJ/m <sup>2</sup> | ISO 180/1A   |
| 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  | 60             | 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  |
| <b>THERMAL</b>                               |                |                   |              |
| Vicat Softening Temp, Rate A/50              | 138            | °C                | ASTM D 1525  |
| HDT, 1.82 MPa, 3.2mm, unannealed             | 120            | °C                | ASTM D 648   |
| CTE, -40°C to 95°C, flow                     | 6.7E-05        | 1/°C              | ASTM E 831   |
| CTE, -40°C to 95°C, xflow                    | 8.E-05         | 1/°C              | ASTM E 831   |
| CTE, 23°C to 80°C, flow                      | 6.7E-05        | 1/°C              | ISO 11359-2  |
| CTE, 23°C to 80°C, xflow                     | 8.E-05         | 1/°C              | ISO 11359-2  |

| PROPERTIES  | TYPICAL VALUES                    | UNITS                   | TEST METHODS   |
|---|-----------------------------------|-------------------------|----------------|
| Vicat Softening Temp, Rate B/50                     | 138                               | °C                      | ISO 306        |
| Vicat Softening Temp, Rate B/120                    | 139                               | °C                      | ISO 306        |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm               | 116                               | °C                      | ISO 75/Af      |
| Relative Temp Index, Elec <sup>(1)</sup>            | 120                               | °C                      | UL 746B        |
| Relative Temp Index, Mech w/impact <sup>(1)</sup>   | 110                               | °C                      | UL 746B        |
| Relative Temp Index, Mech w/o impact <sup>(1)</sup> | 120                               | °C                      | UL 746B        |
| <b>PHYSICAL</b>                                     |                                   |                         |                |
| Specific Gravity                                    | 1.19                              | -                       | ASTM D 792     |
| Mold Shrinkage, flow, 3.2 mm                        | 0.4 – 0.8                         | %                       | SABIC method   |
| Melt Flow Rate, 300°C/1.2 kgf                       | 13                                | g/10 min                | ASTM D 1238    |
| Density   | 1.19                              | g/cm <sup>3</sup>       | ISO 1183       |
| Water Absorption, (23°C/sat)                        | 0.12                              | %                       | ISO 62         |
| Moisture Absorption (23°C / 50% RH)                 | 0.09                              | %                       | ISO 62         |
| Melt Volume Rate, MVR at 300°C/1.2 kg               | 12                                | cm <sup>3</sup> /10 min | ISO 1133       |
| <b>OPTICAL</b>                                      |                                   |                         |                |
| Light Transmission at 2.0 mm                        | 84                                | %                       | SABIC method   |
| Haze, 2mm   | 3                                 | %                       | SABIC method   |
| <b>ELECTRICAL</b>                                   |                                   |                         |                |
| Comparative Tracking Index (UL) {PLC}               | 3                                 | PLC Code                | UL 746A        |
| Hot-Wire Ignition (HWI), PLC 3                      | ≥1                                | mm                      | UL 746A        |
| Hot-Wire Ignition (HWI), PLC 4                      | ≥0.8                              | mm                      | UL 746A        |
| High Amp Arc Ignition (HAI), PLC 0                  | ≥0.8                              | mm                      | UL 746A        |
| <b>FLAME CHARACTERISTICS <sup>(1)</sup></b>         |                                   |                         |                |
| UL Yellow Card Link                                 | <a href="#">E207780-100120434</a> | -                       | -              |
| UL Recognized, 94V-0 Flame Class Rating             | ≥1.8                              | mm                      | UL 94          |
| UL Recognized, 94V-1 Flame Class Rating             | ≥1.5                              | mm                      | UL 94          |
| UL Recognized, 94V-2 Flame Class Rating             | ≥1.2                              | mm                      | UL 94          |
| Glow Wire Ignitability Temperature, 3.0 mm          | 850                               | °C                      | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 2.0 mm          | 850                               | °C                      | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 1.5 mm          | 875                               | °C                      | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 1.0 mm          | 875                               | °C                      | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 0.75 mm         | 875                               | °C                      | IEC 60695-2-13 |
| Glow Wire Flammability Index, 3.0 mm                | 960                               | °C                      | IEC 60695-2-12 |
| Glow Wire Flammability Index, 2.0 mm                | 960                               | °C                      | IEC 60695-2-12 |
| Glow Wire Flammability Index, 1.5 mm                | 960                               | °C                      | IEC 60695-2-12 |
| Glow Wire Flammability Index, 1.0 mm                | 930                               | °C                      | IEC 60695-2-12 |
| Glow Wire Flammability Index, 0.75 mm               | 930                               | °C                      | IEC 60695-2-12 |
| Oxygen Index (LOI)                                  | 35                                | %                       | ISO 4589       |
| <b>INJECTION MOLDING</b>                            |                                   |                         |                |
| Drying Temperature                                  | 120                               | °C                      |                |
| 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                      |                |

| PROPERTIES                  | TYPICAL VALUES | UNITS | TEST METHODS |
|-----------------------------|----------------|-------|--------------|
| 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   |              |
| Shot to Cylinder Size       | 40 – 60        | %     |              |
| Vent Depth                  | 0.025 – 0.076  | mm    |              |

(1) 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.

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