

LEXANTM COPOLYMER EXL1434

REGION AMERICAS

DESCRIPTION

LEXAN EXL1434 polycarbonate (PC) siloxane copolymer resin is a medium flow opaque injection molding (IM) grade and is UV stabilized. This resin offers extreme low temperature (-40 C), exhibits excellent processability and release with opportunities for shorter IM cycle times compared to standard PC. LEXAN EXL1434 resin is a product available in wide range of opaque colors and may be an excellent candidate for a wide variety of applications.

TYPICAL PROPERTY VALUES

Revision 20200610

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|--|----------------|-------------------|--------------|
| MECHANICAL | | | |
| Tensile Stress, yld, Type I, 50 mm/min | 55 | MPa | ASTM D 638 |
| Tensile Stress, brk, Type I, 50 mm/min | 50 | MPa | ASTM D 638 |
| Tensile Strain, yld, Type I, 50 mm/min | 6 | % | ASTM D 638 |
| Tensile Strain, brk, Type I, 50 mm/min | 98 | % | ASTM D 638 |
| Tensile Modulus, 50 mm/min | 2020 | 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 | 2230 | MPa | ASTM D 790 |
| Hardness, Rockwell L | 89 | - | ASTM D 785 |
| Hardness, Rockwell R | 121 | - | ASTM D 785 |
| Tensile Stress, yield, 50 mm/min | 57 | MPa | ISO 527 |
| Tensile Stress, break, 50 mm/min | 60 | MPa | ISO 527 |
| Tensile Strain, yield, 50 mm/min | 6 | % | ISO 527 |
| Tensile Strain, break, 50 mm/min | 120 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 2150 | MPa | ISO 527 |
| Flexural Stress, yield, 2 mm/min | 85 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 2250 | MPa | ISO 178 |
| IMPACT | | | |
| Izod Impact, notched, 23°C | 865 | J/m | ASTM D 256 |
| Izod Impact, notched, -30°C | 774 | J/m | ASTM D 256 |
| Instrumented Impact Total Energy, 23°C | 70 | J | ASTM D 3763 |
| Izod Impact, unnotched 80*10*3 +23°C | NB | kJ/m ² | ISO 180/1U |
| Izod Impact, unnotched 80*10*3 -30°C | NB | kJ/m ² | ISO 180/1U |
| Izod Impact, notched 80*10*3 +23°C | 70 | kJ/m ² | ISO 180/1A |
| Izod Impact, notched 80*10*3 -30°C | 60 | kJ/m ² | ISO 180/1A |
| Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm | 70 | kJ/m ² | ISO 179/1eA |
| Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm | 65 | kJ/m ² | ISO 179/1eA |
| Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm | NB | kJ/m ² | ISO 179/1eU |
| Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm | NB | kJ/m ² | ISO 179/1eU |
| THERMAL | | | |
| Vicat Softening Temp, Rate B/50 | 145 | °C | ASTM D 1525 |
| HDT, 0.45 MPa, 3.2 mm, unannealed | 139 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 3.2mm, unannealed | 124 | °C | ASTM D 648 |
| CTE, -40°C to 40°C, flow | 7.0E-05 | 1/°C | ASTM E 831 |

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|---|-----------------------------------|-------------------------|----------------|
| CTE, -40°C to 40°C, xflow | 7.47E-05 | 1/°C | ASTM E 831 |
| CTE, 23°C to 80°C, flow | 7.2E-05 | 1/°C | ISO 11359-2 |
| CTE, 23°C to 80°C, xflow | 7.2E-05 | 1/°C | ISO 11359-2 |
| Ball Pressure Test, 125°C +/- 2°C | Passes | - | IEC 60695-10-2 |
| Vicat Softening Temp, Rate B/50 | 145 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 146 | °C | ISO 306 |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm | 140 | °C | ISO 75/Be |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm | 128 | °C | ISO 75/Ae |
| Relative Temp Index, Elec ⁽¹⁾ | 130 | °C | UL 746B |
| Relative Temp Index, Mech w/impact ⁽¹⁾ | 120 | °C | UL 746B |
| Relative Temp Index, Mech w/o impact ⁽¹⁾ | 130 | °C | UL 746B |
| PHYSICAL | | | |
| Specific Gravity | 1.18 | - | ASTM D 792 |
| Mold Shrinkage, flow, 3.2 mm | 0.4 – 0.8 | % | SABIC method |
| Mold Shrinkage, xflow, 3.2 mm | 0.4 – 0.8 | % | SABIC method |
| Melt Flow Rate, 300°C/1.2 kgf | 10 | g/10 min | ASTM D 1238 |
| Density | 1.19 | g/cm ³ | ISO 1183 |
| Water Absorption, (23°C/saturated) | 0.35 | % | ISO 62-1 |
| Moisture Absorption (23°C / 50% RH) | 0.15 | % | ISO 62 |
| Melt Volume Rate, MVR at 300°C/1.2 kg | 9 | cm ³ /10 min | ISO 1133 |
| ELECTRICAL | | | |
| Volume Resistivity | >1.E+15 | Ohm-cm | ASTM D 257 |
| Surface Resistivity | >1.E+15 | Ohm | ASTM D 257 |
| Dielectric Strength, in oil, 0.8 mm | 16.2 | kV/mm | ASTM D 149 |
| Relative Permittivity, 100 Hz | 2.68 | - | ASTM D 150 |
| Relative Permittivity, 1 MHz | 2.64 | - | ASTM D 150 |
| Dissipation Factor, 100 Hz | 0.0012 | - | ASTM D 150 |
| Dissipation Factor, 1 MHz | 0.0093 | - | ASTM D 150 |
| Hot-Wire Ignition (HWI), PLC 0 | ≥0.7 | mm | UL 746A |
| High Amp Arc Ignition (HAI), PLC 1 | ≥0.7 | mm | UL 746A |
| FLAME CHARACTERISTICS ⁽¹⁾ | | | |
| UL Yellow Card Link | E121562-100079873 | - | - |
| UL Yellow Card Link 2 | E121562-575796 | - | - |
| UL Recognized, 94HB Flame Class Rating | ≥0.7 | mm | UL 94 |
| Glow Wire Ignitability Temperature, 3.0 mm | 875 | °C | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 1.0 mm | 875 | °C | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 1.5 mm | 875 | °C | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 0.8 mm | 875 | °C | IEC 60695-2-13 |
| Glow Wire Flammability Index, 3.0 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 | 960 | °C | IEC 60695-2-12 |
| Glow Wire Flammability Index, 0.8 mm | 850 | °C | IEC 60695-2-12 |
| UV-light, water exposure/immersion | F1 | - | UL 746C |
| Oxygen Index (LOI) | 37 | % | ISO 4589 |
| INJECTION MOLDING | | | |

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|-----------------------------|----------------|-------|--------------|
| 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 | |
| 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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