# LNP™ ELCRES™ EXL1414AML

## DESCRIPTION

ELCRES EXL1414AML is a polycarbonate (PC) siloxane copolymer resin containing antimicrobial additives, medium flow, opaque and injection molding (IM) grade. This resin offers extreme low temperature (-40 degrees) ductility in combination with excellent processability and release with opportunities for shorter IM cycle times compared with standard PC.

| GENERAL INFORMATION | |
|---|---|
| **Features** | Impact resistant, Low temperature impact, No PFAS intentionally added |
| **Fillers** | Unreinforced |
| **Polymer Types** | Polycarbonate (PC) |
| **Processing Techniques** | Injection Molding |

| INDUSTRY | SUB INDUSTRY |
|---|---|
| Automotive | Automotive Interiors, Automotive Under the Hood, Automotive Exteriors, Recreational/Specialty Vehicles |
| Building and Construction | Building Component, Water Management |
| Consumer | Ophthalmics, Sport/Leisure, Personal Accessory, Home Appliances, Personal Recreation, Commercial Appliance |
| Electrical and Electronics | Mobile Phone - Computer - Tablets, Lighting |
| Hygiene and Healthcare | Surgical devices, General Healthcare, Patient Testing |
| Industrial | Electrical, Defense |

## TYPICAL PROPERTY VALUES

Revision 20231109

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| MECHANICAL [1] | | | |
| **Tensile Stress, yld, Type I, 50 mm/min** | 54 | MPa | ASTM D638 |
| **Tensile Stress, brk, Type I, 50 mm/min** | 64 | MPa | ASTM D638 |
| **Tensile Strain, yld, Type I, 50 mm/min** | 5 | % | ASTM D638 |
| **Tensile Strain, brk, Type I, 50 mm/min** | 115 | % | ASTM D638 |
| **Tensile Modulus, 50 mm/min** | 2085 | MPa | ASTM D638 |
| **Flexural Strength, 1.3 mm/min, 50 mm span** | 86 | MPa | ASTM D790 |
| **Flexural Modulus, 1.3 mm/min, 50 mm span** | 2100 | MPa | ASTM D790 |
| **Tensile Stress, yield, 50 mm/min** | 53 | MPa | ISO 527 |
| **Tensile Stress, break, 50 mm/min** | 64 | MPa | ISO 527 |
| **Tensile Strain, yield, 50 mm/min** | 6 | % | ISO 527 |
| **Tensile Strain, break, 50 mm/min** | 119 | % | ISO 527 |
| **Tensile Modulus, 1 mm/min** | 2066 | MPa | ISO 527 |
| **Flexural Strength, 2 mm/min** | 73 | MPa | ISO 178 |
| **Flexural Modulus, 2 mm/min** | 2223 | MPa | ISO 178 |
| IMPACT [1] | | | |
| **Izod Impact, notched, 23°C** | 890 | J/m | ASTM D256 |
| **Izod Impact, notched, -30°C** | 700 | J/m | ASTM D256 |
| **Instrumented Dart Impact Total Energy, 23°C** | 70 | J | ASTM D3763 |

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| Izod Impact, notched 80*10*3 +23°C | 70 | kJ/m² | ISO 180/1A |
| Izod Impact, notched 80*10*3 -30°C | 52 | kJ/m² | ISO 180/1A |
| Izod Impact, unnotched 80*10*3 +23°C | NB | kJ/m² | ISO 180/1U |
| Izod Impact, unnotched 80*10*3 -30°C | NB | kJ/m² | ISO 180/1U |
| Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm | 72 | kJ/m² | ISO 179/1eA |
| Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm | 49 | kJ/m² | ISO 179/1eA |
| Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm | NB | kJ/m² | ISO 179/1eU |
| Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm | NB | kJ/m² | ISO 179/1eU |
| THERMAL (1) | | | |
| HDT, 0.45 MPa, 3.2 mm, unannealed | 139 | °C | ASTM D648 |
| HDT, 1.82 MPa, 3.2mm, unannealed | 125 | °C | ASTM D648 |
| 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 |
| CTE, -40°C to 40°C, flow | 7.0E-5 | 1/°C | ASTM E831 |
| CTE, -40°C to 40°C, xflow | 7.47E-5 | 1/°C | ASTM E831 |
| CTE, 23°C to 80°C, flow | 7.2E-5 | 1/°C | ISO 11359-2 |
| CTE, 23°C to 80°C, xflow | 7.2E-5 | 1/°C | ISO 11359-2 |
| Vicat Softening Temp, Rate B/50 | 140 | °C | ASTM D1525 |
| Vicat Softening Temp, Rate B/50 | 140 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 139 | °C | ISO 306 |
| Ball Pressure Test, 125°C +/- 2°C | Passes | - | IEC 60695-10-2 |
| PHYSICAL (1) | | | |
| Specific Gravity | 1.19 | - | ASTM D792 |
| Mold Shrinkage, flow, 3.2 mm (2) | 0.4 – 0.8 | % | SABIC method |
| Mold Shrinkage, xflow, 3.2 mm (2) | 0.4 – 0.8 | % | SABIC method |
| Melt Flow Rate, 300°C/1.2 kgf | 11 | g/10 min | ASTM D1238 |
| Density | 1.19 | g/cm³ | 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 | 10 | cm³/10 min | ISO 1133 |
| INJECTION MOLDING (3) | | | |
| Drying Temperature | 120 | °C | |
| Drying Time | 3 – 4 | 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 | |

(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) 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.

(3) 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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