

LEXAN™ HEALTHCARE RESIN HP1

REGION ASIA

DESCRIPTION

LEXAN HP1 is a high flow polycarbonate (PC) with an MVR (300°C/1.2kg) of 25. This is a biocompatible (ISO10993 or USP Class VI) grade for medical devices and pharmaceutical applications. It is EtO and steam sterilizable, contains mold release and adheres to our healthcare management of change policy.

TYPICAL PROPERTY VALUES

Revision 20200803

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|--|----------------|-------------------|--------------|
| MECHANICAL | | | |
| Tensile Stress, yld, Type I, 50 mm/min | 62 | MPa | ASTM D638 |
| Tensile Stress, brk, Type I, 50 mm/min | 65 | MPa | ASTM D638 |
| Tensile Strain, yld, Type I, 50 mm/min | 6 | % | ASTM D638 |
| Tensile Strain, brk, Type I, 50 mm/min | 120 | % | ASTM D638 |
| Tensile Modulus, 50 mm/min | 2370 | MPa | ASTM D638 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 93 | MPa | ASTM D790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 2300 | MPa | ASTM D790 |
| Hardness, Rockwell M | 70 | - | ASTM D785 |
| Hardness, Rockwell R | 118 | - | ASTM D785 |
| Taber Abrasion, CS-17, 1 kg | 10 | mg/1000cy | ASTM D1044 |
| Tensile Stress, yield, 50 mm/min | 63 | MPa | ISO 527 |
| Tensile Stress, break, 50 mm/min | 50 | MPa | ISO 527 |
| Tensile Strain, yield, 50 mm/min | 6 | % | ISO 527 |
| Tensile Strain, break, 50 mm/min | 70 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 2350 | MPa | ISO 527 |
| Flexural Stress, yield, 2 mm/min | 90 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 2300 | MPa | ISO 178 |
| IMPACT | | | |
| Izod Impact, unnotched, 23°C | 3204 | J/m | ASTM D4812 |
| Izod Impact, notched (natural, tints) | 640 | J/m | ASTM D256 |
| Izod Impact, notched (colors) | 106.8 – 640.8 | J/m | ASTM D256 |
| Tensile Impact Strength, Type S | 378 | kJ/m ² | ASTM D1822 |
| Falling Dart Impact (D 3029), 23°C | 169 | J | ASTM D3029 |
| Instrumented Dart Impact Energy @ peak, 23°C | 54 | J | ASTM D3763 |
| Izod Impact, unnotched 80*10*4 +23°C | NB | kJ/m ² | ISO 180/1U |
| Izod Impact, unnotched 80*10*4 -30°C | NB | kJ/m ² | ISO 180/1U |
| Izod Impact, notched 80*10*4 +23°C | 12 | kJ/m ² | ISO 180/1A |
| Izod Impact, notched 80*10*4 -30°C | 10 | kJ/m ² | ISO 180/1A |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm | 12 | kJ/m ² | ISO 179/1eA |
| Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm | 10 | kJ/m ² | ISO 179/1eA |
| THERMAL | | | |
| HDT, 0.45 MPa, 6.4 mm, unannealed | 137 | °C | ASTM D648 |
| HDT, 1.82 MPa, 6.4 mm, unannealed | 126 | °C | ASTM D648 |
| CTE, -40°C to 95°C, flow | 6.84E-05 | 1/°C | ASTM E831 |

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|---|----------------|------------|----------------|
| Specific Heat | 1.25 | J/g-°C | ASTM C351 |
| Thermal Conductivity | 0.19 | W/m-°C | ASTM C177 |
| Thermal Conductivity | 0.2 | W/m-°C | ISO 8302 |
| CTE, 23°C to 80°C, flow | 7.E-05 | 1/°C | ISO 11359-2 |
| Ball Pressure Test, 125°C +/- 2°C | PASSES | - | IEC 60695-10-2 |
| Vicat Softening Temp, Rate B/50 | 139 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 140 | °C | ISO 306 |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm | 133 | °C | ISO 75/Be |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm | 121 | °C | ISO 75/Ae |
| Relative Temp Index, Elec | 130 | °C | UL 746B |
| Relative Temp Index, Mech w/impact | 130 | °C | UL 746B |
| Relative Temp Index, Mech w/o impact | 130 | °C | UL 746B |
| PHYSICAL | | | |
| Specific Gravity | 1.2 | - | ASTM D792 |
| Specific Volume | 0.83 | cm³/g | ASTM D792 |
| Density | 1.19 | g/cm³ | ASTM D792 |
| Water Absorption, (23°C/24hrs) | 0.15 | % | ASTM D570 |
| Water Absorption, (23°C/Saturated) | 0.35 | % | ASTM D570 |
| Water Absorption, equilibrium, 100°C | 0.58 | % | ASTM D570 |
| Mold Shrinkage, flow, 3.2 mm | 0.5 – 0.7 | % | SABIC method |
| Melt Flow Rate, 300°C/1.2 kgf | 25 | g/10 min | ASTM D1238 |
| Melt Volume Rate, MVR at 300°C/1.2 kg | 23 | cm³/10 min | ISO 1133 |
| OPTICAL | | | |
| Light Transmission, 2.54 mm | 88 | % | ASTM D1003 |
| Haze, 2.54 mm | 1 | % | ASTM D1003 |
| Refractive Index | 1.586 | - | ASTM D542 |
| ELECTRICAL | | | |
| Volume Resistivity | >1.E+17 | Ω.cm | ASTM D257 |
| Dielectric Strength, in air, 3.2 mm | 14.9 | kV/mm | ASTM D149 |
| Relative Permittivity, 50/60 Hz | 3.17 | - | ASTM D150 |
| Relative Permittivity, 1 MHz | 2.96 | - | ASTM D150 |
| Dissipation Factor, 50/60 Hz | 0.0009 | - | ASTM D150 |
| Dissipation Factor, 1 MHz | 0.01 | - | ASTM D150 |
| Hot Wire Ignition {PLC} | 2 | PLC Code | UL 746A |
| High Voltage Arc Track Rate {PLC} | 2 | PLC Code | UL 746A |
| High Ampere Arc Ign, surface {PLC} | 1 | PLC Code | UL 746A |
| Comparative Tracking Index (UL) {PLC} | 2 | PLC Code | UL 746A |
| Volume Resistivity | >1.E+15 | Ω.cm | IEC 60093 |
| Surface Resistivity, ROA | >1.E+15 | Ω | IEC 60093 |
| Dielectric Strength, in oil, 3.2 mm | 17 | kV/mm | IEC 60243-1 |
| Relative Permittivity, 1 MHz | 2.7 | - | IEC 60250 |
| Dissipation Factor, 50/60 Hz | 0.001 | - | IEC 60250 |
| Dissipation Factor, 1 MHz | 0.01 | - | IEC 60250 |
| Relative Permittivity, 50/60 Hz | 2.7 | - | IEC 60250 |
| FLAME CHARACTERISTICS | | | |

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|---|----------------|-------|--------------|
| UL Recognized, 94V-2 Flame Class Rating | 1.09 | mm | UL 94 |
| Oxygen Index (LOI) | 25 | % | ISO 4589 |
| INJECTION MOLDING | | | |
| Drying Temperature | 120 | °C | |
| Drying Time | 3 – 4 | Hrs | |
| Drying Time (Cumulative) | 48 | Hrs | |
| Maximum Moisture Content | 0.02 | % | |
| Melt Temperature | 270 – 295 | °C | |
| Nozzle Temperature | 265 – 290 | °C | |
| Front - Zone 3 Temperature | 270 – 295 | °C | |
| Middle - Zone 2 Temperature | 260 – 280 | °C | |
| Rear - Zone 1 Temperature | 250 – 270 | °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 | |

DESCRIPTION

TBD

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