# 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 20190718

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| MECHANICAL | | | |
| Tensile Stress, yld, Type I, 50 mm/min | 62 | MPa | ASTM D 638 |
| Tensile Stress, brk, Type I, 50 mm/min | 65 | MPa | ASTM D 638 |
| Tensile Strain, yld, Type I, 50 mm/min | 6 | % | ASTM D 638 |
| Tensile Strain, brk, Type I, 50 mm/min | 120 | % | ASTM D 638 |
| Tensile Modulus, 50 mm/min | 2370 | MPa | ASTM D 638 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 93 | MPa | ASTM D 790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 2300 | MPa | ASTM D 790 |
| Hardness, Rockwell M | 70 | - | ASTM D 785 |
| Hardness, Rockwell R | 118 | - | ASTM D 785 |
| Taber Abrasion, CS-17, 1 kg | 10 | mg/1000cy | ASTM D 1044 |
| 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 D 4812 |
| Izod Impact, notched (natural, tints) | 640 | J/m | ASTM D 256 |
| Izod Impact, notched (colors) | 106.8 – 640.8 | J/m | ASTM D 256 |
| Tensile Impact Strength, Type S | 378 | kJ/m² | ASTM D 1822 |
| Falling Dart Impact (D 3029), 23°C | 169 | J | ASTM D 3029 |
| Instrumented Impact Energy @ peak, 23°C | 54 | J | ASTM D 3763 |
| Izod Impact, unnotched 80*10*4 +23°C | NB | kJ/m² | ISO 180/1U |
| Izod Impact, unnotched 80*10*4 -30°C | NB | kJ/m² | ISO 180/1U |
| Izod Impact, notched 80*10*4 +23°C | 12 | kJ/m² | ISO 180/1A |
| Izod Impact, notched 80*10*4 -30°C | 10 | kJ/m² | ISO 180/1A |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm | 12 | kJ/m² | ISO 179/1eA |
| Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm | 10 | kJ/m² | ISO 179/1eA |
| THERMAL | | | |
| HDT, 0.45 MPa, 6.4 mm, unannealed | 137 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 6.4 mm, unannealed | 126 | °C | ASTM D 648 |

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|---|---|---|---|
| CTE, -40°C to 95°C, flow | 6.84E-05 | 1/°C | ASTM E 831 |
| Specific Heat | 1.25 | J/g-°C | ASTM C 351 |
| 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 D 792 |
| Specific Volume | 0.83 | cm³/g | ASTM D 792 |
| Density | 1.19 | g/cm³ | ASTM D 792 |
| Water Absorption, 24 hours | 0.15 | % | ASTM D 570 |
| Water Absorption, equilibrium, 23C | 0.35 | % | ASTM D 570 |
| Water Absorption, equilibrium, 100°C | 0.58 | % | ASTM D 570 |
| 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 D 1238 |
| Melt Volume Rate, MVR at 300°C/1.2 kg | 23 | cm³/10 min | ISO 1133 |
| OPTICAL | | | |
| Light Transmission, 2.54 mm | 88 | % | ASTM D 1003 |
| Haze, 2.54 mm | 1 | % | ASTM D 1003 |
| Refractive Index | 1.586 | - | ASTM D542 |
| ELECTRICAL | | | |
| Volume Resistivity | >1.E+17 | Ohm-cm | ASTM D 257 |
| Dielectric Strength, in air, 3.2 mm | 14.9 | kV/mm | ASTM D 149 |
| Relative Permittivity, 50/60 Hz | 3.17 | - | ASTM D 150 |
| Relative Permittivity, 1 MHz | 2.96 | - | ASTM D 150 |
| Dissipation Factor, 50/60 Hz | 0.0009 | - | ASTM D 150 |
| Dissipation Factor, 1 MHz | 0.01 | - | ASTM D 150 |
| 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 | Ohm-cm | IEC 60093 |
| Surface Resistivity, ROA | >1.E+15 | Ohm | 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 |

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| FLAME CHARACTERISTICS | | | |
| 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

## DISCLAIMER