

LEXAN™ HEALTHCARE RESIN HPS7

REGION ASIA

DESCRIPTION

Low flow polycarbonate. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO10993 or USP Class VI). EtO, steam, e-beam, and gamma sterilizable. Contains mold release.

TYPICAL PROPERTY VALUES

Revision 20180905

| 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 | 72 | MPa | ASTM D 638 |
| Tensile Strain, yld, Type I, 50 mm/min | 6.5 | % | ASTM D 638 |
| Tensile Strain, brk, Type I, 50 mm/min | 125 | % | ASTM D 638 |
| Tensile Modulus, 50 mm/min | 2270 | MPa | ASTM D 638 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 100 | MPa | ASTM D 790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 2340 | MPa | ASTM D 790 |
| Tensile Stress, yield, 50 mm/min | 61 | MPa | ISO 527 |
| Tensile Stress, break, 50 mm/min | 71 | MPa | ISO 527 |
| Tensile Strain, yield, 50 mm/min | 5.9 | % | ISO 527 |
| Tensile Strain, break, 50 mm/min | 126 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 2450 | MPa | ISO 527 |
| Flexural Stress, yield, 2 mm/min | 95 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 2200 | MPa | ISO 178 |
| IMPACT | | | |
| Izod Impact, unnotched, 23°C | 2700 | J/m | ASTM D 4812 |
| Izod Impact, notched, 23°C | 935 | J/m | ASTM D 256 |
| Izod Impact, notched, -30°C | 785 | J/m | ASTM D 256 |
| Instrumented Impact Total Energy, 23°C | 82 | 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 | 75 | kJ/m ² | ISO 180/1A |
| Izod Impact, notched 80*10*3 -30°C | 15 | kJ/m ² | ISO 180/1A |
| Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm | 75 | kJ/m ² | ISO 179/1eA |
| Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm | 15 | 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 | 141 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 3.2mm, unannealed | 129 | °C | ASTM D 648 |
| HDT, 0.45 MPa, 6.4 mm, unannealed | 141 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 6.4 mm, unannealed | 132 | °C | ASTM D 648 |
| CTE, -40°C to 40°C, flow | 6.6E-05 | 1/°C | ASTM E 831 |

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---------------------------------------|----------------|-------------------------|----------------|
| CTE, -40°C to 40°C, xflow | 7.5E-05 | 1/°C | ASTM E 831 |
| CTE, -40°C to 40°C, flow | 6.6E-05 | 1/°C | ISO 11359-2 |
| CTE, -40°C to 40°C, xflow | 7.5E-05 | 1/°C | ISO 11359-2 |
| Ball Pressure Test, 75°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/Af, 1.8 MPa Flatw 80*10*4 sp=64mm | 128 | °C | ISO 75/Af |
| PHYSICAL | | | |
| Specific Gravity | 1.2 | - | ASTM D 792 |
| Water Absorption, 24 hours | 0.14 | % | ASTM D 570 |
| Mold Shrinkage on Tensile Bar, flow | 0.5 – 0.7 | % | SABIC method |
| Mold Shrinkage, flow, 3.2 mm | 0.5 – 0.7 | % | SABIC method |
| Mold Shrinkage, xflow, 3.2 mm | 0.5 – 0.7 | % | SABIC method |
| Melt Flow Rate, 300°C/1.2 kgf | 5 | g/10 min | ASTM D 1238 |
| Melt Flow Rate, 300°C/5.0 kgf | 24 | g/10 min | ASTM D 1238 |
| Density | 1.19 | g/cm ³ | ISO 1183 |
| Water Absorption, (23°C/sat) | 0.26 | % | ISO 62 |
| Moisture Absorption (23°C / 50% RH) | 0.1 | % | ISO 62 |
| Melt Volume Rate, MVR at 300°C/1.2 kg | 5 | cm ³ /10 min | ISO 1133 |
| INJECTION MOLDING | | | |
| Drying Temperature | 120 | °C | |
| Drying Time | 3 – 4 | hrs | |
| Drying Time (Cumulative) | 48 | hrs | |
| Maximum Moisture Content | 0.02 | % | |
| Melt Temperature | 310 – 330 | °C | |
| Nozzle Temperature | 305 – 325 | °C | |
| Front - Zone 3 Temperature | 310 – 330 | °C | |
| Middle - Zone 2 Temperature | 300 – 320 | °C | |
| Rear - Zone 1 Temperature | 290 – 310 | °C | |
| Mold Temperature | 80 – 115 | °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 | |

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