

# LEXAN™ HEALTHCARE RESIN HP6NR

REGION AMERICAS

## DESCRIPTION

LEXAN™ HP6NR resin is a 7 MFR polycarbonate, MVR of 7. Contains no mold release. Biocompatible (ISO10993 or USP Class VI) grade for medical devices and pharmaceutical applications. EtO and steam sterilizable. Subject to SABIC healthcare management of change process.

## TYPICAL PROPERTY VALUES

Revision 20220721

| PROPERTIES                                   | TYPICAL VALUES | UNITS             | TEST METHODS |
|--|----------------|-------------------|--------------|
| <b>MECHANICAL</b>                            |                |                   |              |
| Tensile Stress, yld, Type I, 50 mm/min       | 62             | MPa               | ASTM D638    |
| Tensile Stress, brk, Type I, 50 mm/min       | 68             | MPa               | ASTM D638    |
| Tensile Strain, yld, Type I, 50 mm/min       | 7              | %                 | ASTM D638    |
| Tensile Strain, brk, Type I, 50 mm/min       | 135            | %                 | ASTM D638    |
| Tensile Modulus, 5 mm/min                    | 2310           | MPa               | ASTM D638    |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 97             | MPa               | ASTM D790    |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 2340           | 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             | 60             | MPa               | ISO 527      |
| Tensile Stress, break, 50 mm/min             | 75             | MPa               | ISO 527      |
| Tensile Strain, yield, 50 mm/min             | 6              | %                 | ISO 527      |
| Tensile Strain, break, 50 mm/min             | 140            | %                 | ISO 527      |
| Tensile Modulus, 1 mm/min                    | 2300           | MPa               | ISO 527      |
| Flexural Stress, yield, 2 mm/min             | 95             | MPa               | ISO 178      |
| Flexural Modulus, 2 mm/min                   | 2250           | MPa               | ISO 178      |
| <b>IMPACT</b>                                |                |                   |              |
| Izod Impact, unnotched, 23°C                 | 3204           | J/m               | ASTM D4812   |
| Izod Impact, notched, 23°C                   | 907            | J/m               | ASTM D256    |
| Izod Impact, notched, -30°C                  | 139            | J/m               | ASTM D256    |
| Tensile Impact Strength, Type S              | 630            | kJ/m <sup>2</sup> | ASTM D1822   |
| Falling Dart Impact (D 3029), 23°C           | 169            | J                 | ASTM D3029   |
| Instrumented Dart Impact Energy @ peak, 23°C | 64             | J                 | ASTM D3763   |
| Instrumented Dart Impact Total Energy, 23°C  | 65             | J                 | ASTM D3763   |
| Izod Impact, unnotched 80*10*3 +23°C         | NB             | kJ/m <sup>2</sup> | ISO 180/1U   |
| Izod Impact, unnotched 80*10*3 -30°C         | NB             | kJ/m <sup>2</sup> | ISO 180/1U   |
| Izod Impact, notched 80*10*3 +23°C           | 75             | kJ/m <sup>2</sup> | ISO 180/1A   |
| Izod Impact, notched 80*10*3 -30°C           | 15             | kJ/m <sup>2</sup> | ISO 180/1A   |
| Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm   | 75             | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm  | 15             | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm   | NB             | kJ/m <sup>2</sup> | ISO 179/1eU  |
| Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm  | NB             | kJ/m <sup>2</sup> | ISO 179/1eU  |
| <b>THERMAL</b>                               |                |                   |              |

| PROPERTIES                            | TYPICAL VALUES | UNITS                   | TEST METHODS   |
|---------------------------------------|----------------|-------------------------|----------------|
| Vicat Softening Temp, Rate B/50       | 154            | °C                      | ASTM D1525     |
| HDT, 0.45 MPa, 3.2 mm, unannealed     | 135            | °C                      | ASTM D648      |
| HDT, 1.82 MPa, 3.2mm, unannealed      | 124            | °C                      | ASTM D648      |
| HDT, 0.45 MPa, 6.4 mm, unannealed     | 137            | °C                      | ASTM D648      |
| HDT, 1.82 MPa, 6.4 mm, unannealed     | 132            | °C                      | ASTM D648      |
| CTE, -40°C to 40°C, flow              | 6.2E-05        | 1/°C                    | ASTM E831      |
| CTE, -40°C to 40°C, xflow             | 5.7E-05        | 1/°C                    | ASTM E831      |
| CTE, -40°C to 95°C, flow              | 6.84E-05       | 1/°C                    | ASTM E831      |
| Specific Heat                         | 1.25           | J/g·°C                  | ASTM C351      |
| Thermal Conductivity                  | 0.19           | W/m·°C                  | ASTM C177      |
| CTE, -40°C to 40°C, flow              | 6.E-05         | 1/°C                    | ISO 11359-2    |
| CTE, -40°C to 40°C, xflow             | 6.E-05         | 1/°C                    | ISO 11359-2    |
| Ball Pressure Test, 75°C +/- 2°C      | PASSES         | -                       | IEC 60695-10-2 |
| Vicat Softening Temp, Rate B/50       | 143            | °C                      | ISO 306        |
| Vicat Softening Temp, Rate B/120      | 140            | °C                      | ISO 306        |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm | 124            | °C                      | ISO 75/Af      |
| 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        |
| <b>PHYSICAL</b>                       |                |                         |                |
| Specific Gravity                      | 1.2            | -                       | ASTM D792      |
| Specific Volume                       | 0.83           | cm <sup>3</sup> /g      | ASTM D792      |
| Density                               | 1.19           | g/cm <sup>3</sup>       | 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 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         | 7              | g/10 min                | ASTM D1238     |
| Melt Flow Rate, 300°C/5.0 kgf         | 112.2          | g/10 min                | ASTM D1238     |
| Density                               | 1.2            | g/cm <sup>3</sup>       | 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 | 7              | cm <sup>3</sup> /10 min | ISO 1133       |
| <b>OPTICAL</b>                        |                |                         |                |
| Light Transmission, 2.54 mm           | 88             | %                       | ASTM D1003     |
| Haze, 2.54 mm                         | 1              | %                       | ASTM D1003     |
| Refractive Index                      | 1.586          | -                       | ASTM D542      |
| <b>ELECTRICAL</b>                     |                |                         |                |
| 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      |

| PROPERTIES                             | TYPICAL VALUES                 | UNITS    | TEST METHODS |
|--|--------------------------------|----------|--------------|
| 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      |
| <b>FLAME CHARACTERISTICS</b>           |                                |          |              |
| UL Yellow Card Link                    | <a href="#">E121562-220863</a> | -        | -            |
| UL Recognized, 94HB Flame Class Rating | 1.47                           | mm       | UL 94        |
| <b>INJECTION MOLDING</b>               |                                |          |              |
| 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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