



**LEXAN™ Resin HPH4504H**  
**Americas: COMMERCIAL**

High heat specialty polycarbonate with enhanced autoclavability. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO10993 of USP Class VI). EtO, steam, gamma and e-beam sterilizable.

| TYPICAL PROPERTIES <sup>1</sup>              | TYPICAL VALUE | Unit                   | Standard    |
|----------------------------------------------|---------------|------------------------|-------------|
| <b>MECHANICAL</b>                            |               |                        |             |
| Tensile Stress, yld, Type I, 50 mm/min       | 660           | kgf/cm <sup>2</sup>    | ASTM D 638  |
| Tensile Stress, brk, Type I, 50 mm/min       | 730           | kgf/cm <sup>2</sup>    | ASTM D 638  |
| Tensile Strain, yld, Type I, 50 mm/min       | 7             | %                      | ASTM D 638  |
| Tensile Strain, brk, Type I, 50 mm/min       | 122           | %                      | ASTM D 638  |
| Tensile Modulus, 5 mm/min                    | 21300         | kgf/cm <sup>2</sup>    | ASTM D 638  |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 970           | kgf/cm <sup>2</sup>    | ASTM D 790  |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 20600         | kgf/cm <sup>2</sup>    | ASTM D 790  |
| Hardness, Rockwell M                         | 85            | -                      | ASTM D 785  |
| Hardness, Rockwell R                         | 122           | -                      | ASTM D 785  |
| Tensile Stress, yield, 5 mm/min              | 65            | MPa                    | ISO 527     |
| Tensile Stress, yield, 50 mm/min             | 65            | MPa                    | ISO 527     |
| Tensile Stress, break, 50 mm/min             | 65            | MPa                    | ISO 527     |
| Tensile Strain, yield, 50 mm/min             | 7             | %                      | ISO 527     |
| Tensile Strain, break, 50 mm/min             | 7             | %                      | ISO 527     |
| Tensile Modulus, 1 mm/min                    | 2260          | MPa                    | ISO 527     |
| Flexural Stress, yield, 2 mm/min             | 66            | MPa                    | ISO 178     |
| Flexural Modulus, 2 mm/min                   | 2120          | MPa                    | ISO 178     |
| <b>IMPACT</b>                                |               |                        |             |
| Izod Impact, unnotched, 23°C                 | 326           | cm-kgf/cm              | ASTM D 4812 |
| Izod Impact, notched, 23°C                   | 65            | cm-kgf/cm              | ASTM D 256  |
| Izod Impact, notched, -30°C                  | 14            | cm-kgf/cm              | ASTM D 256  |
| Tensile Impact, Type S                       | 589           | cm-kgf/cm <sup>2</sup> | ASTM D 1822 |



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| <b>IMPACT</b>                              |               |                    |             |
| Falling Dart Impact (D 3029), 23°C         | 1520          | cm-kgf             | ASTM D 3029 |
| Instrumented Impact Total Energy, 23°C     | 744           | cm-kgf             | ASTM D 3763 |
| Izod Impact, notched 80*10*4 +23°C         | 13            | kJ/m <sup>2</sup>  | ISO 180/1A  |
| Izod Impact, notched 80*10*4 -30°C         | 11            | kJ/m <sup>2</sup>  | ISO 180/1A  |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm | 15            | kJ/m <sup>2</sup>  | ISO 179/1eA |
| <b>THERMAL</b>                             |               |                    |             |
| Vicat Softening Temp, Rate B/50            | 160           | °C                 | ASTM D 1525 |
| HDT, 1.82 MPa, 3.2mm, unannealed           | 143           | °C                 | ASTM D 648  |
| CTE, -40°C to 40°C, flow                   | 6.E-05        | 1/°C               | ASTM E 831  |
| CTE, -40°C to 40°C, xflow                  | 6.E-05        | 1/°C               | ASTM E 831  |
| CTE, -40°C to 95°C, flow                   | 9.18E-05      | 1/°C               | ASTM E 831  |
| Specific Heat                              | 1.26          | J/g-°C             | ASTM C 351  |
| Thermal Conductivity                       | 0.21          | W/m-°C             | ASTM C 177  |
| 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 |
| Vicat Softening Temp, Rate B/50            | 154           | °C                 | ISO 306     |
| Vicat Softening Temp, Rate B/120           | 155           | °C                 | ISO 306     |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm      | 132           | °C                 | ISO 75/Af   |
| Relative Temp Index, Elec                  | 125           | °C                 | UL 746B     |
| Relative Temp Index, Mech w/impact         | 125           | °C                 | UL 746B     |
| Relative Temp Index, Mech w/o impact       | 125           | °C                 | UL 746B     |
| <b>PHYSICAL</b>                            |               |                    |             |
| Specific Gravity                           | 1.2           | -                  | ASTM D 792  |
| Specific Volume                            | 0.83          | cm <sup>3</sup> /g | ASTM D 792  |
| Density                                    | 1.19          | g/cm <sup>3</sup>  | ASTM D 792  |



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| <b>PHYSICAL</b>                             |               |                         |              |
| Water Absorption, 24 hours                  | 0.16          | %                       | ASTM D 570   |
| Mold Shrinkage, flow, 3.2 mm (5)            | 0.7 - 0.8     | %                       | SABIC Method |
| Melt Flow Rate, 300°C/1.2 kgf               | 3             | g/10 min                | ASTM D 1238  |
| Density                                     | 1.2           | g/cm <sup>3</sup>       | ISO 1183     |
| Water Absorption, (23°C/sat)                | 0.16          | %                       | ISO 62       |
| Moisture Absorption (23°C / 50% RH)         | 0.35          | %                       | ISO 62       |
| Melt Volume Rate, MVR at 300°C/1.2 kg       | 3             | cm <sup>3</sup> /10 min | ISO 1133     |
| Melt Volume Rate, MVR at 330°C/2.16kg       | 12            | cm <sup>3</sup> /10 min | ISO 1133     |
| <b>OPTICAL</b>                              |               |                         |              |
| Light Transmission, 2.54 mm                 | 85            | %                       | ASTM D 1003  |
| Haze, 2.54 mm                               | 1             | %                       | ASTM D 1003  |
| Refractive Index                            | 1.6           | -                       | ASTM D 542   |
| <b>ELECTRICAL</b>                           |               |                         |              |
| Volume Resistivity                          | >2.6E+17      | Ohm-cm                  | ASTM D 257   |
| Dielectric Strength, in air, 3.2 mm         | 20.3          | kV/mm                   | ASTM D 149   |
| Relative Permittivity, 50/60 Hz             | 3.15          | -                       | ASTM D 150   |
| Relative Permittivity, 1 MHz                | 3             | -                       | ASTM D 150   |
| Dissipation Factor, 50/60 Hz                | 0.0012        | -                       | ASTM D 150   |
| Dissipation Factor, 100 Hz                  | 0.024         | -                       | ASTM D 150   |
| Hot Wire Ignition {PLC}                     | 2             | PLC Code                | UL 746A      |
| High Voltage Arc Track Rate {PLC}           | 3             | PLC Code                | UL 746A      |
| High Ampere Arc Ign, surface {PLC}          | 4             | PLC Code                | UL 746A      |
| Comparative Tracking Index (UL) {PLC}       | 3             | PLC Code                | UL 746A      |
| <b>FLAME CHARACTERISTICS</b>                |               |                         |              |
| UL Recognized, 94V-2 Flame Class Rating (3) | 1.47          | mm                      | UL 94        |



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| PROCESSING PARAMETERS       | TYPICAL VALUE | Unit |
|-----------------------------|---------------|------|
| <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            | 340 - 360     | °C   |
| Nozzle Temperature          | 330 - 355     | °C   |
| Front - Zone 3 Temperature  | 340 - 360     | °C   |
| Middle - Zone 2 Temperature | 325 - 350     | °C   |
| Rear - Zone 1 Temperature   | 315 - 340     | °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   |