



## LEXAN™ Resin 505R

### Americas: COMMERCIAL

LEXAN 505R Polycarbonate (PC) resin is a 10% glass fiber filled, injection moldable grade. LEXAN 505R contains non-chlorinated, non-brominated flame retardant systems with UL-94 V0 rating at 1.5mm. It is available in various opaque color options for high stiffness applications.

| TYPICAL PROPERTIES <sup>1</sup>              | TYPICAL VALUE | Unit                | Standard     |
|----------------------------------------------|---------------|---------------------|--------------|
| <b>MECHANICAL</b>                            |               |                     |              |
| Tensile Stress, yld, Type I, 5 mm/min        | 640           | kgf/cm <sup>2</sup> | ASTM D 638   |
| Tensile Stress, brk, Type I, 5 mm/min        | 480           | kgf/cm <sup>2</sup> | ASTM D 638   |
| Tensile Strain, yld, Type I, 5 mm/min        | 3             | %                   | ASTM D 638   |
| Tensile Strain, brk, Type I, 5 mm/min        | 12            | %                   | ASTM D 638   |
| Tensile Modulus, 5 mm/min                    | 40000         | kgf/cm <sup>2</sup> | ASTM D 638   |
| Flexural Stress, brk, 1.3 mm/min, 50 mm span | 1100          | kgf/cm <sup>2</sup> | ASTM D 790   |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 35900         | kgf/cm <sup>2</sup> | ASTM D 790   |
| Taber Abrasion, CS-17, 1 kg                  | 11            | mg/1000cy           | SABIC Method |
| Tensile Stress, yield, 5 mm/min              | 60            | MPa                 | ISO 527      |
| Tensile Stress, break, 5 mm/min              | 45            | MPa                 | ISO 527      |
| Tensile Strain, yield, 5 mm/min              | 5             | %                   | ISO 527      |
| Tensile Strain, break, 5 mm/min              | 7             | %                   | ISO 527      |
| Tensile Modulus, 1 mm/min                    | 3300          | MPa                 | ISO 527      |
| Flexural Stress, yield, 2 mm/min             | 95            | MPa                 | ISO 178      |
| Flexural Modulus, 2 mm/min                   | 3400          | MPa                 | ISO 178      |
| Hardness, H358/30                            | 115           | MPa                 | ISO 2039-1   |
| <b>IMPACT</b>                                |               |                     |              |
| Izod Impact, unnotched, 23°C                 | 163           | cm-kgf/cm           | ASTM D 4812  |
| Izod Impact, notched, 23°C                   | 10            | cm-kgf/cm           | ASTM D 256   |
| Izod Impact, notched, -30°C                  | 8             | cm-kgf/cm           | ASTM D 256   |
| Instrumented Impact Total Energy, 23°C       | 622           | cm-kgf              | ASTM D 3763  |
| Izod Impact, unnotched 80*10*3 +23°C         | NB            | kJ/m <sup>2</sup>   | ISO 180/1U   |



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| <b>IMPACT</b>                               |               |                   |             |
| Izod Impact, unnotched 80*10*3 -30°C        | 130           | kJ/m <sup>2</sup> | ISO 180/1U  |
| Izod Impact, notched 80*10*3 +23°C          | 10            | kJ/m <sup>2</sup> | ISO 180/1A  |
| Izod Impact, notched 80*10*3 -30°C          | 8             | kJ/m <sup>2</sup> | ISO 180/1A  |
| Izod Impact, unnotched 80*10*4 +23°C        | NB            | kJ/m <sup>2</sup> | ISO 180/1U  |
| Izod Impact, unnotched 80*10*4 -30°C        | NB            | kJ/m <sup>2</sup> | ISO 180/1U  |
| Izod Impact, notched 80*10*4 +23°C          | 8             | kJ/m <sup>2</sup> | ISO 180/1A  |
| Izod Impact, notched 80*10*4 -30°C          | 8             | kJ/m <sup>2</sup> | ISO 180/1A  |
| Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm  | 10            | kJ/m <sup>2</sup> | ISO 179/1eA |
| Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm | 9             | 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 |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm  | 9             | kJ/m <sup>2</sup> | ISO 179/1eA |
| Charpy Impact, notched, 23°C                | 15            | kJ/m <sup>2</sup> | ISO 179/2C  |
| Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm  | NB            | kJ/m <sup>2</sup> | ISO 179/1eU |
| Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm | NB            | kJ/m <sup>2</sup> | ISO 179/1eU |
| <b>THERMAL</b>                              |               |                   |             |
| Vicat Softening Temp, Rate B/50             | 149           | °C                | ASTM D 1525 |
| HDT, 0.45 MPa, 3.2 mm, unannealed           | 143           | °C                | ASTM D 648  |
| HDT, 1.82 MPa, 3.2mm, unannealed            | 138           | °C                | ASTM D 648  |
| CTE, -40°C to 40°C, flow                    | 4.68E-05      | 1/°C              | ASTM E 831  |
| CTE, -40°C to 40°C, xflow                   | 8.46E-05      | 1/°C              | ASTM E 831  |
| Thermal Conductivity                        | 0.21          | W/m-°C            | ISO 8302    |
| CTE, 23°C to 80°C, flow                     | 4.E-05        | 1/°C              | ISO 11359-2 |
| CTE, 23°C to 80°C, xflow                    | 7.E-05        | 1/°C              | ISO 11359-2 |



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| <b>THERMAL</b>                              |               |                         |                |
| Ball Pressure Test, 125°C +/- 2°C           | PASSES        | -                       | IEC 60695-10-2 |
| Vicat Softening Temp, Rate B/50             | 141           | °C                      | ISO 306        |
| Vicat Softening Temp, Rate B/120            | 143           | °C                      | ISO 306        |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm     | 144           | °C                      | ISO 75/Be      |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm     | 136           | °C                      | ISO 75/Ae      |
| HDT/Ae, 1.8 MPa Annealed 120°C, 2hrs        | 136           | °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        |
| <b>PHYSICAL</b>                             |               |                         |                |
| Specific Gravity                            | 1.26          | -                       | ASTM D 792     |
| Mold Shrinkage on Tensile Bar, flow (2) (5) | 0.2 - 0.6     | %                       | SABIC Method   |
| Mold Shrinkage, flow, 3.2 mm (5)            | 0.5 - 0.7     | %                       | SABIC Method   |
| Melt Flow Rate, 300°C/1.2 kgf               | 7             | g/10 min                | ASTM D 1238    |
| Density                                     | 1.25          | g/cm <sup>3</sup>       | ISO 1183       |
| Water Absorption, (23°C/sat)                | 0.31          | %                       | ISO 62         |
| Moisture Absorption (23°C / 50% RH)         | 0.13          | %                       | ISO 62         |
| Melt Volume Rate, MVR at 300°C/1.2 kg       | 7             | cm <sup>3</sup> /10 min | ISO 1133       |
| <b>ELECTRICAL</b>                           |               |                         |                |
| Volume Resistivity                          | >1.E+15       | Ohm-cm                  | IEC 60093      |
| Surface Resistivity, ROA                    | >1.E+15       | Ohm                     | IEC 60093      |
| Dielectric Strength, in oil, 0.8 mm         | 33            | kV/mm                   | IEC 60243-1    |
| Dielectric Strength, in oil, 1.6 mm         | 25            | kV/mm                   | IEC 60243-1    |
| Dielectric Strength, in oil, 3.2 mm         | 16            | kV/mm                   | IEC 60243-1    |
| Relative Permittivity, 1 MHz                | 2.8           | -                       | IEC 60250      |
| Dissipation Factor, 50/60 Hz                | 0.001         | -                       | IEC 60250      |
| Dissipation Factor, 1 MHz                   | 0.01          | -                       | IEC 60250      |
| Comparative Tracking Index                  | 150           | V                       | IEC 60112      |



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| TYPICAL PROPERTIES <sup>1</sup>               | TYPICAL VALUE | Unit | Standard       |
|-----------------------------------------------|---------------|------|----------------|
| <b>ELECTRICAL</b>                             |               |      |                |
| Relative Permittivity, 50/60 Hz               | 2.9           | -    | IEC 60250      |
| <b>FLAME CHARACTERISTICS</b>                  |               |      |                |
| UL Recognized, 94V-0 Flame Class Rating (3)   | 1.5           | mm   | UL 94          |
| UL Recognized, 94-5VA Rating (3)              | 3             | mm   | UL 94          |
| Glow Wire Flammability Index 960°C, passes at | 1             | mm   | IEC 60695-2-12 |
| Glow Wire Ignitability Temperature, 1.0 mm    | 825           | °C   | IEC 60695-2-13 |
| Oxygen Index (LOI)                            | 37            | %    | ISO 4589       |



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| PROCESSING PARAMETERS       | TYPICAL VALUE | Unit |
|-----------------------------|---------------|------|
| <b>Injection Molding</b>    |               |      |
| Drying Temperature          | 120           | °C   |
| Drying Time                 | 2 - 4         | hrs  |
| Maximum Moisture Content    | 0.02          | %    |
| Melt Temperature            | 290 - 320     | °C   |
| Nozzle Temperature          | 280 - 310     | °C   |
| Front - Zone 3 Temperature  | 290 - 320     | °C   |
| Middle - Zone 2 Temperature | 280 - 310     | °C   |
| Rear - Zone 1 Temperature   | 270 - 300     | °C   |
| Hopper Temperature          | 60 - 80       | °C   |
| Mold Temperature            | 80 - 120      | °C   |



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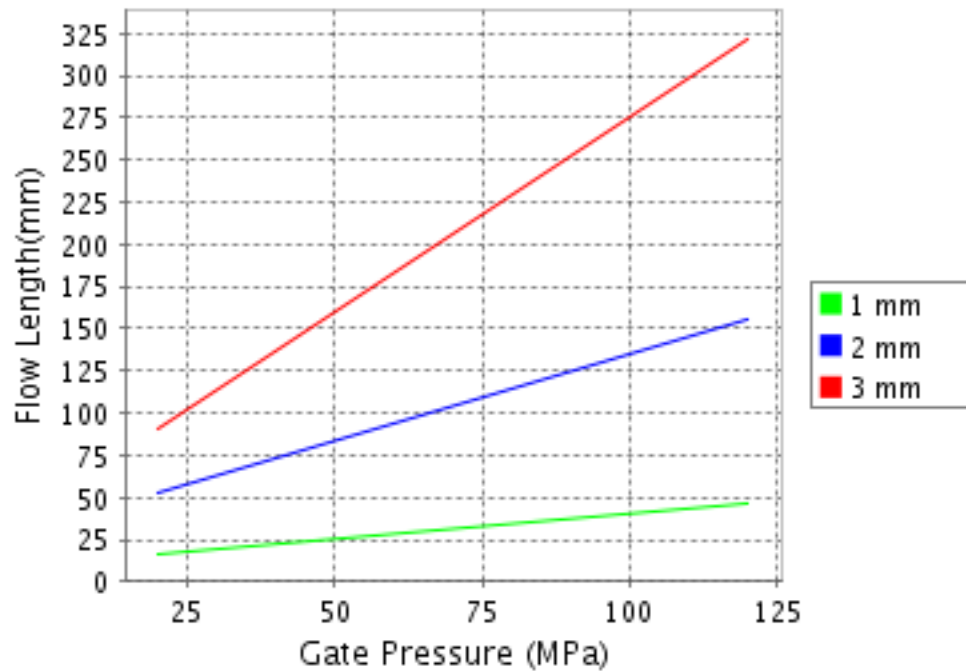
### CALCULATED FLOW LENGTH INDICATION

Moldflow® Radial Flow Analysis

LEXAN® 505R

Melt Temperature : 305°C

Mold Temperature : 100°C



**Note: Technical support is recommended if Gate Pressure is greater than 80 MPa. Contact your local representative.**

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