

# LEXANT™ RESIN VR2220

REGION AMERICAS

## DESCRIPTION

LEXANT™ VR2220 resin is a 12 MFR polycarbonate, MVR of 11. UV stabilized. Mold release. UL746C f1 rated. Available in transparent, limited package types, and must meet minimum order quantity requirements.

## TYPICAL PROPERTY VALUES

| PROPERTIES                                   | TYPICAL VALUES | UNITS     | TEST METHODS |
|----------------------------------------------|----------------|-----------|--------------|
| <b>MECHANICAL</b>                            |                |           |              |
| Tensile Stress, yld, Type I, 50 mm/min       | 63             | MPa       | ASTM D638    |
| Tensile Stress, brk, Type I, 50 mm/min       | 65             | MPa       | ASTM D638    |
| Tensile Strain, yld, Type I, 50 mm/min       | 7              | %         | ASTM D638    |
| Tensile Strain, brk, Type I, 50 mm/min       | 110            | %         | ASTM D638    |
| Tensile Modulus, 5 mm/min                    | 2350           | MPa       | ASTM D638    |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 93             | MPa       | ASTM D790    |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 2300           | MPa       | ASTM D790    |
| Hardness, Rockwell M                         | 70             | -         | ASTM D785    |
| Hardness, Rockwell R                         | 120            | -         | ASTM D785    |
| Taber Abrasion, CS-17, 1 kg                  | 10             | mg/1000cy | ASTM D1044   |
| Tensile Stress, yield, 50 mm/min             | 63             | MPa       | ISO 527      |
| Tensile Stress, break, 50 mm/min             | 70             | MPa       | ISO 527      |
| Tensile Strain, yield, 50 mm/min             | 6              | %         | ISO 527      |
| Tensile Strain, break, 50 mm/min             | 110            | %         | 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      |
| <b>IMPACT</b>                                |                |           |              |
| Izod Impact, unnotched, 23°C                 | 3204           | J/m       | ASTM D4812   |
| Izod Impact, notched, 23°C                   | 800            | J/m       | ASTM D256    |
| Izod Impact, notched, -30°C                  | N/A            | J/m       | ASTM D256    |
| Tensile Impact Strength, Type S              | 546            | kJ/m²     | ASTM D1822   |
| Falling Dart Impact (D 3029), 23°C           | 169            | J         | ASTM D3029   |
| Instrumented Dart Impact Total Energy, 23°C  | 64             | J         | ASTM D3763   |
| 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   | 35             | kJ/m²     | ISO 179/1eA  |
| <b>THERMAL</b>                               |                |           |              |
| Vicat Softening Temp, Rate B/50              | 154            | °C        | ASTM D1525   |
| HDT, 1.82 MPa, 3.2mm, unannealed             | 127            | °C        | ASTM D648    |
| HDT, 0.45 MPa, 6.4 mm, unannealed            | 138            | °C        | ASTM D648    |
| HDT, 1.82 MPa, 6.4 mm, unannealed            | 132            | °C        | ASTM D648    |
| CTE, -40°C to 95°C, flow                     | 6.84E-05       | 1/°C      | ASTM E831    |
| CTE, -40°C to 95°C, xflow                    | 6.84E-05       | 1/°C      | ASTM E831    |

| PROPERTIES                              | TYPICAL VALUES                 | UNITS      | TEST METHODS   |
|-----------------------------------------|--------------------------------|------------|----------------|
| Specific Heat                           | 1.26                           | J/g·°C     | ASTM C351      |
| Thermal Conductivity                    | 0.19                           | W/m·°C     | ASTM C177      |
| CTE, 23°C to 80°C, flow                 | 7.E-05                         | 1/°C       | ISO 11359-2    |
| CTE, 23°C to 80°C, xflow                | 7.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         | 142                            | °C         | ISO 306        |
| Vicat Softening Temp, Rate B/120        | 142                            | °C         | ISO 306        |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm | 136                            | °C         | ISO 75/Be      |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm | 125                            | °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 D792      |
| Specific Volume                         | 0.83                           | cm³/g      | ASTM D792      |
| Density                                 | 1.19                           | g/cm³      | 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           | 12                             | g/10 min   | ASTM D1238     |
| Density                                 | 1.2                            | g/cm³      | 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   | 11                             | cm³/10 min | ISO 1133       |
| OPTICAL                                 |                                |            |                |
| Light Transmission, 2.54 mm             | 88                             | %          | ASTM D1003     |
| Haze, 2.54 mm                           | 1                              | %          | ASTM D1003     |
| Refractive Index                        | 1.586                          | -          | ASTM D542      |
| ELECTRICAL                              |                                |            |                |
| Volume Resistivity                      | >1.E+17                        | Ω.cm       | ASTM D257      |
| Dielectric Strength, in air, 3.2 mm     | 15                             | 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      |
| Hot Wire Ignition {PLC}                 | 4                              | 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        |
| FLAME CHARACTERISTICS                   |                                |            |                |
| UL Yellow Card Link                     | <a href="#">E121562-221022</a> | -          | -              |
| UL Recognized, 94HB Flame Class Rating  | 0.76                           | mm         | UL 94          |

| PROPERTIES                          | TYPICAL VALUES | UNITS | TEST METHODS |
|-------------------------------------|----------------|-------|--------------|
| Oxygen Index (LOI)                  | 25             | %     | ASTM D2863   |
| UV-light, water exposure /immersion | F1             | -     | UL 746C      |
| INJECTION MOLDING                   |                |       |              |
| Drying Temperature                  | 120            | °C    |              |
| Drying Time                         | 3 – 4          | Hrs   |              |
| Drying Time (Cumulative)            | 48             | Hrs   |              |
| Maximum Moisture Content            | 0.02           | %     |              |
| Melt Temperature                    | 295 – 315      | °C    |              |
| Nozzle Temperature                  | 290 – 310      | °C    |              |
| Front - Zone 3 Temperature          | 295 – 315      | °C    |              |
| Middle - Zone 2 Temperature         | 280 – 305      | °C    |              |
| Rear - Zone 1 Temperature           | 270 – 295      | °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    |              |