

## SABIC Innovative Plastics Lexan® VR2020 PC (Europe-Africa-Middle East)

Category : Polymer , Thermoplastic , Polycarbonate (PC)

### Material Notes:

VR2020 resin is a medium-high flow (MFR = 18 at 300°C/1.2kg), heat and UV stabilized, polycarbonate product with mold release designed for use in the general purpose molding market.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_SABIC-Innovative-Plastics-Lexan-VR2020-PC-Europe-Africa-Middle-East.php](http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-Lexan-VR2020-PC-Europe-Africa-Middle-East.php)

| Physical Properties                | Metric  | English   | Comments                                |
|------------------------------------|---|---|---|
| Specific Gravity                   | 1.20 g/cc   | 1.20 g/cc   | ASTM D792                               |
| Density                            | 1.20 g/cc   | 0.0434 lb/in <sup>3</sup>                           | ISO 1183                                |
| Moisture Absorption at Equilibrium | 0.35 %  | 0.35 %  | ASTM D570                               |
| Water Absorption at Saturation     | 0.35 %  | 0.35 %  | ISO 62                                  |
| Linear Mold Shrinkage, Flow        | 0.0050 - 0.0070 cm/cm                               | 0.0050 - 0.0070 in/in                               | on Tensile Bar; SABIC Method            |
|                                    | 0.0050 - 0.0070 cm/cm<br>@Thickness 3.20 mm         | 0.0050 - 0.0070 in/in<br>@Thickness 0.126 in        | SABIC Method                            |
| Melt Flow                          | 18 g/10 min<br>@Load 1.20 kg,<br>Temperature 300 °C | 18 g/10 min<br>@Load 2.65 lb,<br>Temperature 572 °F | ASTM D1238                              |
| Melt Index of Compound             | 17 g/10 min<br>@Load 1.20 kg,<br>Temperature 300 °C | 17 g/10 min<br>@Load 2.65 lb,<br>Temperature 572 °F | MVR [cm <sup>3</sup> /10 min]; ISO 1133 |

| Mechanical Properties   | Metric   | English  | Comments                     |
|-------------------------|----------|----------|------------------------------|
| Hardness, Rockwell R    | 120      | 120      | ISO 2039-2                   |
|                         | 120      | 120      | ASTM D785                    |
| Tensile Strength, Yield | 63.0 MPa | 9140 psi | Type I, 50 mm/min; ASTM D638 |
|                         | 63.0 MPa | 9140 psi | 50 mm/min; ISO 527           |
| Elongation at Break     | >= 70 %  | >= 70 %  | Type I, 50 mm/min; ASTM D638 |
|                         | >= 70 %  | >= 70 %  | 50 mm/min; ISO 527           |
| Elongation at Yield     | 6.0 %    | 6.0 %    | Type I, 50 mm/min; ASTM D638 |
|                         | 6.0 %    | 6.0 %    | 50 mm/min; ISO 527           |

| Tensile Modulus<br>Mechanical Properties | 2.35 GPa<br>Metric                              | 341 ksi<br>English                                  | 1 mm/min; ISO 527<br>Comments                    |
|--|---|---|--|
|  | 2.35 GPa  | 341 ksi   | 50 mm/min; ASTM D638                             |
| Flexural Yield Strength                  | 90.0 MPa  | 13100 psi   | 2 mm/min; ISO 178                                |
|  | 90.0 MPa  | 13100 psi   | 1.3 mm/min, 50 mm span; ASTM D790                |
| Flexural Modulus                         | 2.30 GPa  | 334 ksi   | 2 mm/min; ISO 178                                |
|  | 2.30 GPa  | 334 ksi   | 1.3 mm/min, 50 mm span; ASTM D790                |
| Izod Impact, Notched                     | 7.00 J/cm                                       | 13.1 ft-lb/in                                       | ASTM D256  |
| Izod Impact, Unnotched                   | NB  | NB  | ASTM D4812                                       |
| Izod Impact, Notched (ISO)               | 70.0 kJ/m <sup>2</sup>                          | 33.3 ft-lb/in <sup>2</sup>                          | 80*10*3; ISO 180/1A                              |
|  | 12.0 kJ/m <sup>2</sup><br>@Temperature -30.0 °C | 5.71 ft-lb/in <sup>2</sup><br>@Temperature -22.0 °F | 80*10*3; ISO 180/1A                              |
| Izod Impact, Unnotched (ISO)             | NB  | NB  | 80*10*3; ISO 180/1U                              |
|  | NB<br>@Temperature -30.0 °C                     | NB<br>@Temperature -22.0 °F                         | 80*10*3; ISO 180/1U                              |
| Dart Drop, Total Energy                  | 65.0 J  | 47.9 ft-lb  | Instrumented Impact Energy @ peak;<br>ASTM D3763 |

| Thermal Properties                          | Metric                       | English                            | Comments                         |
|---|------------------------------|------------------------------------|----------------------------------|
| CTE, linear, Parallel to Flow               | 70.0 µm/m-°C                 | 38.9 µin/in-°F                     | ISO 11359-2                      |
|   | @Temperature 23.0 - 80.0 °C  | @Temperature 73.4 - 176 °F         |                                  |
|   | 70.0 µm/m-°C                 | 38.9 µin/in-°F                     | ASTM E 831                       |
|   | @Temperature -40.0 - 95.0 °C | @Temperature -40.0 - 203 °F        |                                  |
| Thermal Conductivity                        | 0.200 W/m-K                  | 1.39 BTU-in/hr-ft <sup>2</sup> -°F | ISO 8302                         |
|   | 0.200 W/m-K                  | 1.39 BTU-in/hr-ft <sup>2</sup> -°F | ASTM C177                        |
| Deflection Temperature at 0.46 MPa (66 psi) | 135 °C                       | 275 °F                             | Flatw 80*10*4 sp=64mm; ISO 75/Bf |
|   | 135 °C<br>@Thickness 3.20 mm | 275 °F<br>@Thickness 0.126 in      | ASTM D648                        |
| Deflection Temperature at 1.8 MPa (264 psi) | 124 °C                       | 255 °F                             | Flatw 80*10*4 sp=64mm; ISO 75/Af |

| Thermal Properties    | 124 °C<br>Metric   | 255 °F<br>English   | Comments              |
|-----------------------|--------------------|---------------------|-----------------------|
|                       | @Thickness 3.20 mm | @Thickness 0.126 in |                       |
| Vicat Softening Point | 141 °C             | 286 °F              | Rate B/50; ISO 306    |
|                       | 141 °C             | 286 °F              | Rate B/50; ASTM D1525 |

| Optical Properties    | Metric                          | English                          | Comments            |
|-----------------------|---------------------------------|----------------------------------|---------------------|
| Refractive Index      | 1.586                           | 1.586                            | ASTM D542           |
|                       | 1.586                           | 1.586                            | ISO 489             |
| Haze                  | <= 0.80 %<br>@Thickness 2.54 mm | <= 0.80 %<br>@Thickness 0.100 in | ASTM D1003          |
| Transmission, Visible | 88 - 90 %                       | 88 - 90 %                        | 2.54 mm; ASTM D1003 |

| Electrical Properties | Metric                           | English                           | Comments    |
|-----------------------|----------------------------------|-----------------------------------|-------------|
| Volume Resistivity    | >= 1.00e+15 ohm-cm               | >= 1.00e+15 ohm-cm                | ASTM D257   |
|                       | >= 1.00e+15 ohm-cm               | >= 1.00e+15 ohm-cm                | IEC 60093   |
| Dielectric Constant   | 3.0<br>@Frequency 60.0 Hz        | 3.0<br>@Frequency 60.0 Hz         | ASTM D150   |
|                       | 3.0<br>@Frequency 1.00e+6 Hz     | 3.0<br>@Frequency 1.00e+6 Hz      | ASTM D150   |
|                       | 3.0<br>@Frequency 60.0 Hz        | 3.0<br>@Frequency 60.0 Hz         | IEC 60250   |
|                       | 3.0<br>@Frequency 1.00e+6 Hz     | 3.0<br>@Frequency 1.00e+6 Hz      | IEC 60250   |
| Dielectric Strength   | 27.0 kV/mm<br>@Thickness 1.60 mm | 686 kV/in<br>@Thickness 0.0630 in | ASTM D149   |
|                       | 27.0 kV/mm<br>@Thickness 1.60 mm | 686 kV/in<br>@Thickness 0.0630 in | IEC 60243-1 |
| Dissipation Factor    | 0.0010<br>@Frequency 60.0 Hz     | 0.0010<br>@Frequency 60.0 Hz      | ASTM D150   |
|                       | 0.0010                           | 0.0010                            | IEC 60250   |

| Electrical Properties | @Frequency 60.0 Hz<br>Metric | @Frequency 60.0 Hz<br>English | Comments  |
|-----------------------|------------------------------|-------------------------------|-----------|
|                       | 0.010                        | 0.010                         | IEC 60250 |
|                       | @Frequency 1.00e+6<br>Hz     | @Frequency 1.00e+6<br>Hz      |           |
|                       | 0.010                        | 0.010                         | ASTM D150 |
|                       | @Frequency 1.00e+6<br>Hz     | @Frequency 1.00e+6<br>Hz      |           |

| Descriptive Properties            | Value  | Comments       |
|-----------------------------------|--------|----------------|
| Ball Pressure Test, 125°C +/- 2°C | Passes | IEC 60695-10-2 |

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