

## SABIC Innovative Plastics Lexan® 3412ECR PC (Asia Pacific)

Category : Polymer , Thermoplastic , Polycarbonate (PC)

### Material Notes:

Lexan® 3412ECR Polycarbonate (PC) resin is a 20% glass fiber filled, injection moldable grade. This non-chlorinated, non-brominated flame retardant GF-PC has an UL-94 V0 rating and is available in various opaque color options. Lexan 3412ECR is a resin designed to meet the needs of high stiffness applications.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_SABIC-Innovative-Plastics-Lexan-3412ECR-PC-Asia-Pacific.php](http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-Lexan-3412ECR-PC-Asia-Pacific.php)

| Physical Properties               | Metric   | English  | Comments                                |
|-----------------------------------|--|--|---|
| Specific Gravity                  | 1.30 g/cc  | 1.30 g/cc  | ASTM D792                               |
| Density                           | 1.36 g/cc  | 0.0491 lb/in <sup>3</sup>                            | ISO 1183                                |
| Moisture Absorption               | 0.120 %  | 0.120 %  | 23°C / 50% RH; ISO 62                   |
| Water Absorption at Saturation    | 0.29 %   | 0.29 %   | ISO 62                                  |
| Linear Mold Shrinkage, Flow       | 0.0020 - 0.0050 cm/cm<br>@Thickness 3.20 mm          | 0.0020 - 0.0050 in/in<br>@Thickness 0.126 in         | SABIC Method                            |
| Linear Mold Shrinkage, Transverse | 0.0020 - 0.0050 cm/cm<br>@Thickness 3.20 mm          | 0.0020 - 0.0050 in/in<br>@Thickness 0.126 in         | SABIC Method                            |
| Melt Flow                         | 7.0 g/10 min<br>@Load 1.20 kg,<br>Temperature 300 °C | 7.0 g/10 min<br>@Load 2.65 lb,<br>Temperature 572 °F | ASTM D1238                              |
| Melt Index of Compound            | 7.0 g/10 min<br>@Load 1.20 kg,<br>Temperature 300 °C | 7.0 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                    |
|---------------------------|----------|-----------|-----------------------------|
| Tensile Strength at Break | 87.0 MPa | 12600 psi | Type I, 5 mm/min; ASTM D638 |
|                           | 90.0 MPa | 13100 psi | 5 mm/min; ISO 527           |
| Tensile Strength, Yield   | 90.0 MPa | 13100 psi | Type I, 5 mm/min; ASTM D638 |
|                           | 95.0 MPa | 13800 psi | 5 mm/min; ISO 527           |
| Elongation at Break       | 3.2 %    | 3.2 %     | 5 mm/min; ISO 527           |
| Elongation at Yield       | 2.8 %    | 2.8 %     | 5 mm/min; ISO 527           |
|                           | 3.1 %    | 3.1 %     | Type I, 5 mm/min; ASTM D638 |

| Mechanical Properties        | Metric Pa               | English                    | Comments ASTM D638                 |
|------------------------------|-------------------------|----------------------------|------------------------------------|
|                              | 6.00 GPa                | 870 ksi                    | 1 mm/min; ISO 527                  |
| Flexural Yield Strength      | 140 MPa                 | 20300 psi                  | 2 mm/min; ISO 178                  |
|                              | 156 MPa                 | 22600 psi                  | 1.3 mm/min, 50 mm span; ASTM D790  |
| Flexural Modulus             | 5.00 GPa                | 725 ksi                    | 1.3 mm/min, 50 mm span; ASTM D790  |
|                              | 5.50 GPa                | 798 ksi                    | 2 mm/min; ISO 178                  |
| Izod Impact, Notched         | 1.10 J/cm               | 2.06 ft-lb/in              | ASTM D256                          |
|                              | 1.07 J/cm               | 2.00 ft-lb/in              | ASTM D256                          |
|                              | @Temperature -30.0 °C   | @Temperature -22.0 °F      |                                    |
| Izod Impact, Notched (ISO)   | 7.00 kJ/m <sup>2</sup>  | 3.33 ft-lb/in <sup>2</sup> | 80*10*3; ISO 180/1A                |
|                              | 6.00 kJ/m <sup>2</sup>  | 2.86 ft-lb/in <sup>2</sup> | 80*10*3; ISO 180/1A                |
|                              | @Temperature -30.0 °C   | @Temperature -22.0 °F      |                                    |
| Izod Impact, Unnotched (ISO) | 35.0 kJ/m <sup>2</sup>  | 16.7 ft-lb/in <sup>2</sup> | 80*10*3; ISO 180/1U                |
|                              | 35.0 kJ/m <sup>2</sup>  | 16.7 ft-lb/in <sup>2</sup> | 80*10*3; ISO 180/1U                |
|                              | @Temperature -30.0 °C   | @Temperature -22.0 °F      |                                    |
| Charpy Impact Unnotched      | 4.00 J/cm <sup>2</sup>  | 19.0 ft-lb/in <sup>2</sup> | Edgew 80*10*3 sp=62mm; ISO 179/1eU |
|                              | 4.00 J/cm <sup>2</sup>  | 19.0 ft-lb/in <sup>2</sup> | Edgew 80*10*3 sp=62mm; ISO 179/1eU |
|                              | @Temperature -30.0 °C   | @Temperature -22.0 °F      |                                    |
| Charpy Impact, Notched       | 0.600 J/cm <sup>2</sup> | 2.86 ft-lb/in <sup>2</sup> | Edgew 80*10*3 sp=62mm; ISO 179/1eA |
|                              | 0.500 J/cm <sup>2</sup> | 2.38 ft-lb/in <sup>2</sup> | Edgew 80*10*3 sp=62mm; ISO 179/1eA |
|                              | @Temperature -30.0 °C   | @Temperature -22.0 °F      |                                    |
| Dart Drop, Total Energy      | 20.0 J                  | 14.8 ft-lb                 | ASTM D3763                         |
|                              | @Temperature 23.0 °C    | @Temperature 73.4 °F       |                                    |

| Thermal Properties            | Metric                       | English                     | Comments    |
|-------------------------------|------------------------------|-----------------------------|-------------|
| CTE, linear, Parallel to Flow | 30.0 µm/m-°C                 | 16.7 µin/in-°F              | ASTM E 831  |
|                               | @Temperature -40.0 - 40.0 °C | @Temperature -40.0 - 104 °F |             |
|                               | 30.0 µm/m-°C                 | 16.7 µin/in-°F              | ISO 11359-2 |

| Thermal Properties                             | Metric<br>@Temperature 23.0 -<br>80.0 °C | English<br>@Temperature 73.4 -<br>176 °F | Comments                         |
|--|--|--|----------------------------------|
| CTE, linear, Transverse to Flow                | 70.0 µm/m-°C                             | 38.9 µin/in-°F                           | ASTM E 831                       |
|  | @Temperature -40.0 -<br>40.0 °C          | @Temperature -40.0 -<br>104 °F           |                                  |
|  | 70.0 µm/m-°C                             | 38.9 µin/in-°F                           | ISO 11359-2                      |
|  | @Temperature 23.0 -<br>80.0 °C           | @Temperature 73.4 -<br>176 °F            |                                  |
| Deflection Temperature at 0.46 MPa<br>(66 psi) | 141 °C                                   | 286 °F                                   | Flatw 80*10*4 sp=64mm; ISO 75/Bf |
| Deflection Temperature at 1.8 MPa<br>(264 psi) | 136 °C                                   | 277 °F                                   | Flatw 80*10*4 sp=64mm; ISO 75/Af |
| Vicat Softening Point                          | 141 °C                                   | 286 °F                                   | unannealed; ASTM D648            |
|  | @Thickness 3.20 mm                       | @Thickness 0.126 in                      |                                  |
| Vicat Softening Point                          | 145 °C                                   | 293 °F                                   | Rate B/50; ISO 306               |
|  | 146 °C                                   | 295 °F                                   | Rate B/120; ISO 306              |
|  | 147 °C                                   | 297 °F                                   | Rate B/50; ASTM D1525            |
| UL RTI, Electrical                             | 130 °C                                   | 266 °F                                   | UL 746B                          |
| UL RTI, Mechanical with Impact                 | 130 °C                                   | 266 °F                                   | UL 746B                          |
| UL RTI, Mechanical without Impact              | 130 °C                                   | 266 °F                                   | UL 746B                          |
| Flammability, UL94                             | V-0                                      | V-0                                      | UL 94                            |
|  | @Thickness 1.50 mm                       | @Thickness 0.0591 in                     |                                  |
|  | 5VA                                      | 5VA                                      | UL 94                            |
|  | @Thickness 3.00 mm                       | @Thickness 0.118 in                      |                                  |
| Oxygen Index                                   | 40 %                                     | 40 %                                     | ISO 4589                         |
| Glow Wire Test                                 | 825 °C                                   | 1520 °F                                  | IEC 60695-2-13                   |
|  | 960 °C                                   | 1760 °F                                  | IEC 60695-2-12                   |
|  | @Thickness 1.00 mm                       | @Thickness 0.0394 in                     |                                  |

| Electrical Properties | Metric             | English            | Comments       |
|-----------------------|--------------------|--------------------|----------------|
| Volume Resistivity    | >= 1.00e+15 ohm-cm | >= 1.00e+15 ohm-cm | IEC 60093      |
| Surface Resistance    | >= 1.00e+15 ohm    | >= 1.00e+15 ohm    | ROA; IEC 60093 |
| Dielectric Constant   | 3.3                | 3.3                | IEC 60250      |

| Electrical Properties                   | @Frequency 1.00e+6<br>Metric<br>Hz | @Frequency 1.00e+6<br>English<br>Hz | Comments            |
|---|------------------------------------|-------------------------------------|---------------------|
|   | 3.3                                | 3.3                                 | IEC 60250           |
|   | @Frequency 50.0 - 60.0<br>Hz       | @Frequency 50.0 - 60.0<br>Hz        |                     |
| Dissipation Factor                      | 0.010                              | 0.010                               | IEC 60250           |
|   | @Frequency 1.00e+6<br>Hz           | @Frequency 1.00e+6<br>Hz            |                     |
|   | 0.020                              | 0.020                               | IEC 60250           |
|   | @Frequency 50.0 - 60.0<br>Hz       | @Frequency 50.0 - 60.0<br>Hz        |                     |
| Arc Resistance                          | 0.00 - 60 sec                      | 0.00 - 60 sec                       | Tungsten; ASTM D495 |
| Comparative Tracking Index              | 175 - 250 V                        | 175 - 250 V                         | UL 746A             |
| Hot Wire Ignition, HWI                  | >= 120 sec                         | >= 120 sec                          | UL 746A             |
| High Amp Arc Ignition, HAI              | 15 - 30 arcs                       | 15 - 30 arcs                        | UL 746A             |
| High Voltage Arc-Tracking Rate,<br>HVTR | 80.0 - 150 mm/min                  | 3.15 - 5.91 in/min                  | UL 746A             |

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

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