

# LEXAN™ 3412ECR resin

Polycarbonate

SABIC Innovative Plastics

## Message:

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.

| General Information                        |                                                       |                        |                 |
|--------------------------------------------|-------------------------------------------------------|------------------------|-----------------|
| UL YellowCard                              | E207780-228394                                        |                        |                 |
| Filler / Reinforcement                     | Glass fiber reinforced material, 20% filler by weight |                        |                 |
| Additive                                   | Flame retardancy                                      |                        |                 |
| Features                                   | Chlorine Free                                         |                        |                 |
|                                            | Rigidity, high                                        |                        |                 |
|                                            | Bromine-free                                          |                        |                 |
|                                            | Flame retardancy                                      |                        |                 |
| Appearance                                 | Opacity                                               |                        |                 |
| Processing Method                          | Injection molding                                     |                        |                 |
| Physical                                   | Nominal Value                                         | Unit                   | Test Method     |
| Specific Gravity                           |                                                       |                        |                 |
| --                                         | 1.30                                                  | g/cm <sup>3</sup>      | ASTM D792       |
| --                                         | 1.36                                                  | g/cm <sup>3</sup>      | ISO 1183        |
| Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)   | 7.0                                                   | g/10 min               | ASTM D1238      |
| Melt Volume-Flow Rate (MVR) (300°C/1.2 kg) | 7.00                                                  | cm <sup>3</sup> /10min | ISO 1133        |
| Molding Shrinkage                          |                                                       |                        | Internal method |
| Flow: 3.20mm                               | 0.20 - 0.50                                           | %                      | Internal method |
| Transverse flow: 3.20mm                    | 0.20 - 0.50                                           | %                      | Internal method |
| Water Absorption                           |                                                       |                        | ISO 62          |
| Saturated, 23°C                            | 0.29                                                  | %                      | ISO 62          |
| Equilibrium, 23°C, 50% RH                  | 0.12                                                  | %                      | ISO 62          |
| Mechanical                                 | Nominal Value                                         | Unit                   | Test Method     |
| Tensile Modulus                            |                                                       |                        |                 |
| -- <sup>1</sup>                            | 5500                                                  | MPa                    | ASTM D638       |
| --                                         | 6000                                                  | MPa                    | ISO 527-2/1     |
| Tensile Strength                           |                                                       |                        |                 |
| Yield <sup>2</sup>                         | 90.0                                                  | MPa                    | ASTM D638       |
| Yield                                      | 95.0                                                  | MPa                    | ISO 527-2/5     |
| Fracture <sup>3</sup>                      | 87.0                                                  | MPa                    | ASTM D638       |
| Fracture                                   | 90.0                                                  | MPa                    | ISO 527-2/5     |

|                                                 |               |                   |                          |
|-------------------------------------------------|---------------|-------------------|--------------------------|
| Tensile Elongation                              |               |                   |                          |
| Yield <sup>4</sup>                              | 3.1           | %                 | ASTM D638                |
| Yield                                           | 2.8           | %                 | ISO 527-2/5              |
| Fracture                                        | 3.2           | %                 | ISO 527-2/5              |
| Flexural Modulus                                |               |                   |                          |
| 50.0mm span <sup>5</sup>                        | 5000          | MPa               | ASTM D790                |
| -- <sup>6</sup>                                 | 5500          | MPa               | ISO 178                  |
| Flexural Stress                                 |               |                   |                          |
| --                                              | 140           | MPa               | ISO 178                  |
| Yield, 50.0mm span <sup>7</sup>                 | 156           | MPa               | ASTM D790                |
| Impact                                          | Nominal Value | Unit              | Test Method              |
| Charpy Notched Impact Strength <sup>8</sup>     |               |                   | ISO 179/1eA              |
| -30°C                                           | 5.0           | kJ/m <sup>2</sup> | ISO 179/1eA              |
| 23°C                                            | 6.0           | kJ/m <sup>2</sup> | ISO 179/1eA              |
| Charpy Unnotched Impact Strength <sup>9</sup>   |               |                   | ISO 179/1eU              |
| -30°C                                           | 40            | kJ/m <sup>2</sup> | ISO 179/1eU              |
| 23°C                                            | 40            | kJ/m <sup>2</sup> | ISO 179/1eU              |
| Notched Izod Impact                             |               |                   |                          |
| -30°C                                           | 110           | J/m               | ASTM D256                |
| 23°C                                            | 110           | J/m               | ASTM D256                |
| -30°C <sup>10</sup>                             | 6.0           | kJ/m <sup>2</sup> | ISO 180/1A               |
| 23°C <sup>11</sup>                              | 7.0           | kJ/m <sup>2</sup> | ISO 180/1A               |
| Unnotched Izod Impact Strength <sup>12</sup>    |               |                   | ISO 180/1U               |
| -30°C                                           | 35            | kJ/m <sup>2</sup> | ISO 180/1U               |
| 23°C                                            | 35            | kJ/m <sup>2</sup> | ISO 180/1U               |
| Instrumented Dart Impact (23°C, Total Energy)   | 20.0          | J                 | ASTM D3763               |
| Thermal                                         | Nominal Value | Unit              | Test Method              |
| Heat Deflection Temperature                     |               |                   |                          |
| 0.45 MPa, unannealed, 64.0mm span <sup>13</sup> | 141           | °C                | ISO 75-2/Bf              |
| 1.8 MPa, unannealed, 3.20mm                     | 141           | °C                | ASTM D648                |
| 1.8 MPa, unannealed, 64.0mm span <sup>14</sup>  | 136           | °C                | ISO 75-2/Af              |
| Vicat Softening Temperature                     |               |                   |                          |
| --                                              | 147           | °C                | ASTM D1525 <sup>15</sup> |
| --                                              | 145           | °C                | ISO 306/B50              |
| --                                              | 146           | °C                | ISO 306/B120             |
| Ball Pressure Test (125°C)                      | Pass          |                   | IEC 60695-10-2           |
| Linear thermal expansion coefficient            |               |                   |                          |
| Flow: -40 to 40°C                               | 3.0E-5        | cm/cm/°C          | ASTM E831                |
| Flow: 23 to 80°C                                | 3.0E-5        | cm/cm/°C          | ISO 11359-2              |
| Lateral: -40 to 40°C                            | 7.0E-5        | cm/cm/°C          | ASTM E831                |
| Lateral: 23 to 80°C                             | 7.0E-5        | cm/cm/°C          | ISO 11359-2              |

| RTI Elec                                 | 130           | °C      | UL 746         |
|------------------------------------------|---------------|---------|----------------|
| RTI Imp                                  | 130           | °C      | UL 746         |
| RTI                                      | 130           | °C      | UL 746         |
| Electrical                               | Nominal Value | Unit    | Test Method    |
| Surface Resistivity                      | > 1.0E+15     | ohms    | IEC 60093      |
| Volume Resistivity                       | > 1.0E+15     | ohms·cm | IEC 60093      |
| Relative Permittivity                    |               |         | IEC 60250      |
| 50 Hz                                    | 3.30          |         | IEC 60250      |
| 60 Hz                                    | 3.30          |         | IEC 60250      |
| 1 MHz                                    | 3.30          |         | IEC 60250      |
| Dissipation Factor                       |               |         | IEC 60250      |
| 50 Hz                                    | 0.020         |         | IEC 60250      |
| 60 Hz                                    | 0.020         |         | IEC 60250      |
| 1 MHz                                    | 0.010         |         | IEC 60250      |
| Arc Resistance <sup>16</sup>             | PLC 7         |         | ASTM D495      |
| Comparative Tracking Index (CTI)         | PLC 3         |         | UL 746         |
| High Amp Arc Ignition (HAI)              | PLC 3         |         | UL 746         |
| High Voltage Arc Tracking Rate (HVTR)    | PLC 3         |         | UL 746         |
| Hot-wire Ignition (HWI)                  | PLC 0         |         | UL 746         |
| Flammability                             | Nominal Value | Unit    | Test Method    |
| Flame Rating                             |               |         | UL 94          |
| 1.50 mm                                  | V-0           |         | UL 94          |
| 3.00 mm                                  | 5VA           |         | UL 94          |
| Glow Wire Flammability Index (1.00 mm)   | 960           | °C      | IEC 60695-2-12 |
| Glow Wire Ignition Temperature (1.00 mm) | 825           | °C      | IEC 60695-2-13 |
| Oxygen Index                             | 40            | %       | ISO 4589-2     |
| Injection                                | Nominal Value | Unit    |                |
| Drying Temperature                       | 121           | °C      |                |
| Drying Time                              | 3.0 - 4.0     | hr      |                |
| Drying Time, Maximum                     | 48            | hr      |                |
| Suggested Max Moisture                   | 0.020         | %       |                |
| Suggested Shot Size                      | 40 - 60       | %       |                |
| Rear Temperature                         | 266 - 288     | °C      |                |
| Middle Temperature                       | 277 - 299     | °C      |                |
| Front Temperature                        | 288 - 310     | °C      |                |
| Nozzle Temperature                       | 282 - 304     | °C      |                |
| Processing (Melt) Temp                   | 288 - 310     | °C      |                |
| Mold Temperature                         | 71.1 - 93.3   | °C      |                |
| Back Pressure                            | 0.345 - 0.689 | MPa     |                |
| Screw Speed                              | 40 - 70       | rpm     |                |
| Vent Depth                               | 0.025 - 0.076 | mm      |                |
| NOTE                                     |               |         |                |

|     |                           |
|-----|---------------------------|
| 1.  | 5.0 mm/min                |
| 2.  | Type 1, 5.0 mm/min        |
| 3.  | Type 1, 5.0 mm/min        |
| 4.  | Type 1, 5.0 mm/min        |
| 5.  | 1.3 mm/min                |
| 6.  | 2.0 mm/min                |
| 7.  | 1.3 mm/min                |
| 8.  | 80*10*3 sp=62mm           |
| 9.  | 80*10*3 sp=62mm           |
| 10. | 80*10*3                   |
| 11. | 80*10*3                   |
| 12. | 80*10*3                   |
| 13. | 80*10*4 mm                |
| 14. | 80*10*4 mm                |
| 15. | 标准 B (120°C/h), 载荷2 (50N) |
| 16. | Tungsten electrode        |

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