

## VALOX™ FR RESINS 357M

REGION AMERICAS

### DESCRIPTION

LIMITED USE, No New Customers / Applications as of Jan. 2010:

PBT+PC alloy with impact modifier and FR package for electrical markets. Extrusion Grade, Flame retardant, Impact Modified, Mold Release, Opaque, UL Grade,

### TYPICAL PROPERTY VALUES

Revision 20200901

| PROPERTIES                                   | TYPICAL VALUES | UNITS | TEST METHODS |
|----------------------------------------------|----------------|-------|--------------|
| <b>MECHANICAL</b>                            |                |       |              |
| Tensile Stress, yld, Type I, 50 mm/min       | 48             | MPa   | ASTM D638    |
| Tensile Stress, brk, Type I, 50 mm/min       | 48             | MPa   | ASTM D638    |
| Tensile Strain, brk, Type I, 50 mm/min       | 110            | %     | ASTM D638    |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 82             | MPa   | ASTM D790    |
| Flexural Stress, brk, 1.3 mm/min, 50 mm span | 82             | MPa   | ASTM D790    |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 2060           | MPa   | ASTM D790    |
| Hardness, Rockwell R                         | 117            | -     | ASTM D785    |
| <b>IMPACT</b>                                |                |       |              |
| Izod Impact, unnotched, 23°C                 | 3200           | J/m   | ASTM D4812   |
| Izod Impact, notched, 23°C                   | 530            | J/m   | ASTM D256    |
| Gardner, 23°C                                | 43             | J     | ASTM D3029   |
| Modified Gardner, 23°C                       | 43             | J     | ASTM D3029   |
| <b>THERMAL</b>                               |                |       |              |
| HDT, 0.45 MPa, 6.4 mm, unannealed            | 137            | °C    | ASTM D648    |
| HDT, 1.82 MPa, 6.4 mm, unannealed            | 98             | °C    | ASTM D648    |
| CTE, -40°C to 40°C, flow                     | 9.18E-05       | 1/°C  | ASTM E831    |
| CTE, 60°C to 138°C, flow                     | 1.24E-04       | 1/°C  | ASTM E831    |
| Relative Temp Index, Elec                    | 120            | °C    | UL 746B      |
| Relative Temp Index, Mech w/impact           | 120            | °C    | UL 746B      |
| Relative Temp Index, Mech w/o impact         | 140            | °C    | UL 746B      |
| <b>PHYSICAL</b>                              |                |       |              |
| Specific Gravity                             | 1.34           | -     | ASTM D792    |
| Specific Volume                              | 0.75           | cm³/g | ASTM D792    |
| Water Absorption, (23°C/24hrs)               | 0.08           | %     | ASTM D570    |
| Mold Shrinkage, flow, 0.75-2.3 mm            | 0.8 – 1.1      | %     | SABIC method |
| Mold Shrinkage, flow, 2.3-4.6 mm             | 1 – 1.4        | %     | SABIC method |
| Mold Shrinkage, xflow, 0.75-2.3 mm           | 0.9 – 1.3      | %     | SABIC method |
| Mold Shrinkage, xflow, 2.3-4.6 mm            | 1.2 – 1.6      | %     | SABIC method |
| <b>ELECTRICAL</b>                            |                |       |              |
| Volume Resistivity                           | >1.2E+16       | Ω.cm  | ASTM D257    |
| Dielectric Strength, in air, 3.2 mm          | 18.5           | kV/mm | ASTM D149    |
| Dielectric Strength, in oil, 1.6 mm          | 25.1           | kV/mm | ASTM D149    |
| Dielectric Strength, in oil, 3.2 mm          | 18.5           | kV/mm | ASTM D149    |

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| PROPERTIES                               | TYPICAL VALUES                    | UNITS    | TEST METHODS |
|------------------------------------------|-----------------------------------|----------|--------------|
| Relative Permittivity, 100 Hz            | 3.2                               | -        | ASTM D150    |
| Relative Permittivity, 1 MHz             | 3.2                               | -        | ASTM D150    |
| Dissipation Factor, 100 Hz               | 0.003                             | -        | ASTM D150    |
| Dissipation Factor, 1 MHz                | 0.03                              | -        | ASTM D150    |
| Arc Resistance, Tungsten {PLC}           | 6                                 | PLC Code | ASTM D495    |
| Hot Wire Ignition {PLC}                  | 2                                 | PLC Code | UL 746A      |
| High Voltage Arc Track Rate {PLC}        | 3                                 | PLC Code | UL 746A      |
| High Ampere Arc Ign, surface {PLC}       | 3                                 | PLC Code | UL 746A      |
| Comparative Tracking Index (UL) {PLC}    | 2                                 | PLC Code | UL 746A      |
| FLAME CHARACTERISTICS                    |                                   |          |              |
| UL Yellow Card Link                      | <a href="#">E121562-100036617</a> | -        | -            |
| UL Yellow Card Link 2                    | <a href="#">E121562-220786</a>    | -        | -            |
| UL Recognized, 94HB Flame Class Rating   | 0.45                              | mm       | UL 94        |
| UL Recognized, 94V-0 Flame Class Rating  | 0.63                              | mm       | UL 94        |
| UL Recognized, 94-5VA Flame Class Rating | 2.99                              | mm       | UL 94        |
| UV-light, water exposure/immersion       | F2                                | -        | UL 746C      |
| INJECTION MOLDING                        |                                   |          |              |
| Drying Temperature                       | 120                               | °C       |              |
| Drying Time                              | 3 – 4                             | Hrs      |              |
| Drying Time (Cumulative)                 | 12                                | Hrs      |              |
| Maximum Moisture Content                 | 0.02                              | %        |              |
| Melt Temperature                         | 250 – 265                         | °C       |              |
| Nozzle Temperature                       | 245 – 260                         | °C       |              |
| Front - Zone 3 Temperature               | 250 – 265                         | °C       |              |
| Middle - Zone 2 Temperature              | 245 – 260                         | °C       |              |
| Rear - Zone 1 Temperature                | 240 – 255                         | °C       |              |
| Mold Temperature                         | 50 – 75                           | °C       |              |
| Back Pressure                            | 0.3 – 0.7                         | MPa      |              |
| Screw Speed                              | 50 – 100                          | rpm      |              |
| Shot to Cylinder Size                    | 40 – 80                           | %        |              |
| Vent Depth                               | 0.025 – 0.038                     | mm       |              |

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