



# VALOX™ FR RESINS 780

REGION AMERICAS

## DESCRIPTION

VALOX 780 Polybutylene Terephthalate/Polyethylene Terephthalate (PBT/PET) resin is mineral and glass fiber reinforced , reduced blooming effect, injection moldable grade. This brominated flame retardant PBT/PET has a UL V0 rating . VALOX 780 resin is a general purpose resin that is an excellent candidate for a wide variety of applications including circuit and motor coil housings.

## TYPICAL PROPERTY VALUES

| PROPERTIES                                   | TYPICAL VALUES | UNITS    | TEST METHODS |
|----------------------------------------------|----------------|----------|--------------|
| <b>MECHANICAL</b>                            |                |          |              |
| Tensile Stress, brk, Type I, 5 mm/min        | 99             | MPa      | ASTM D638    |
| Flexural Stress, brk, 1.3 mm/min, 50 mm span | 165            | MPa      | ASTM D790    |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 10340          | MPa      | ASTM D790    |
| Hardness, Rockwell R                         | 116            | -        | ASTM D785    |
| <b>IMPACT</b>                                |                |          |              |
| Izod Impact, unnotched, 23°C                 | 373            | J/m      | ASTM D4812   |
| Izod Impact, notched, 23°C                   | 53             | J/m      | ASTM D256    |
| <b>THERMAL</b>                               |                |          |              |
| HDT, 0.45 MPa, 6.4 mm, unannealed            | 210            | °C       | ASTM D648    |
| HDT, 1.82 MPa, 6.4 mm, unannealed            | 193            | °C       | ASTM D648    |
| CTE, -40°C to 40°C, flow                     | 2.52E-05       | 1/°C     | ASTM E831    |
| CTE, 60°C to 138°C, flow                     | 2.88E-05       | 1/°C     | ASTM E831    |
| 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         | 140            | °C       | UL 746B      |
| <b>PHYSICAL</b>                              |                |          |              |
| Specific Gravity                             | 1.77           | -        | ASTM D792    |
| Specific Volume                              | 0.56           | cm³/g    | ASTM D792    |
| Water Absorption, (23°C/24hrs)               | 0.02           | %        | ASTM D570    |
| Mold Shrinkage, flow, 1.5-3.2 mm             | 0.3 – 0.4      | %        | SABIC method |
| Mold Shrinkage, flow, 3.2-4.6 mm             | 0.4 – 0.6      | %        | SABIC method |
| Mold Shrinkage, xflow, 1.5-3.2 mm            | 0.4 – 0.6      | %        | SABIC method |
| Mold Shrinkage, xflow, 3.2-4.6 mm            | 0.6 – 0.8      | %        | SABIC method |
| <b>ELECTRICAL</b>                            |                |          |              |
| Volume Resistivity                           | 3.5E+15        | Ω.cm     | ASTM D257    |
| Dielectric Strength, in air, 3.2 mm          | 18.1           | kV/mm    | ASTM D149    |
| Dielectric Strength, in oil, 1.6 mm          | 25.5           | kV/mm    | ASTM D149    |
| Relative Permittivity, 100 Hz                | 3.9            | -        | ASTM D150    |
| Relative Permittivity, 1 MHz                 | 3.8            | -        | ASTM D150    |
| Dissipation Factor, 100 Hz                   | 0.007          | -        | ASTM D150    |
| Dissipation Factor, 1 MHz                    | 0.02           | -        | ASTM D150    |
| Arc Resistance, Tungsten {PLC}               | 6              | PLC Code | ASTM D495    |
| Hot Wire Ignition {PLC}                      | 1              | PLC Code | UL 746A      |

| PROPERTIES                              | TYPICAL VALUES        | UNITS    | TEST METHODS |
|-----------------------------------------|-----------------------|----------|--------------|
| High Voltage Arc Track Rate {PLC}       | 1                     | PLC Code | UL 746A      |
| High Ampere Arc Ign, surface {PLC}      | 4                     | PLC Code | UL 746A      |
| Comparative Tracking Index (UL) {PLC}   | 3                     | PLC Code | UL 746A      |
| FLAME CHARACTERISTICS                   |                       |          |              |
| UL Yellow Card Link                     | <u>E121562-220809</u> | -        | -            |
| UL Recognized, 94V-0 Flame Class Rating | 0.81                  | mm       | UL 94        |
| INJECTION MOLDING                       |                       |          |              |
| Drying Temperature                      | 120                   | °C       |              |
| Drying Time                             | 3 – 4                 | Hrs      |              |
| Drying Time (Cumulative)                | 12                    | Hrs      |              |
| Maximum Moisture Content                | 0.02                  | %        |              |
| Melt Temperature                        | 255 – 275             | °C       |              |
| Nozzle Temperature                      | 255 – 270             | °C       |              |
| Front - Zone 3 Temperature              | 255 – 265             | °C       |              |
| Middle - Zone 2 Temperature             | 250 – 260             | °C       |              |
| Rear - Zone 1 Temperature               | 245 – 255             | °C       |              |
| Mold Temperature                        | 65 – 95               | °C       |              |
| Back Pressure                           | 0.3 – 0.7             | MPa      |              |
| Screw Speed                             | 50 – 80               | rpm      |              |
| Shot to Cylinder Size                   | 40 – 80               | %        |              |
| Vent Depth                              | 0.025 – 0.038         | mm       |              |