

## VALOX™ FR RESINS 771

REGION EUROPE

### DESCRIPTION

VALOX 771 is a 35% mineral/glass filled, flame retardant Polybutylene Terephthalate (PBT) injection moldable grade. It has excellent chemical resistance and a UL94V0@0.75 flame rating and 5VA@2.0mm. This grade also has a CTI of 0 and is a good candidate for applications that may see electrical arcing.

### TYPICAL PROPERTY VALUES

Revision 20260509

| PROPERTIES                                   | TYPICAL VALUES | UNITS     | TEST METHODS |
|----------------------------------------------|----------------|-----------|--------------|
| <b>MECHANICAL</b>                            |                |           |              |
| Tensile Stress, yld, Type I, 5 mm/min        | 85             | MPa       | ASTM D638    |
| Tensile Stress, brk, Type I, 5 mm/min        | 85             | MPa       | ASTM D638    |
| Tensile Strain, yld, Type I, 5 mm/min        | 2              | %         | ASTM D638    |
| Tensile Strain, brk, Type I, 5 mm/min        | 2              | %         | ASTM D638    |
| Tensile Modulus, 5 mm/min                    | 9500           | MPa       | ASTM D638    |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 110            | MPa       | ASTM D790    |
| Flexural Stress, brk, 1.3 mm/min, 50 mm span | 110            | MPa       | ASTM D790    |
| Flexural Modulus, 1.3 mm/min, 50 mm span     | 7900           | MPa       | ASTM D790    |
| Taber Abrasion, CS-17, 1 kg                  | 55             | mg/1000cy | SABIC method |
| Tensile Stress, yield, 5 mm/min              | 85             | MPa       | ISO 527      |
| Tensile Stress, break, 5 mm/min              | 85             | MPa       | ISO 527      |
| Tensile Strain, yield, 5 mm/min              | 2              | %         | ISO 527      |
| Tensile Strain, break, 5 mm/min              | 2              | %         | ISO 527      |
| Tensile Modulus, 1 mm/min                    | 9700           | MPa       | ISO 527      |
| Flexural Stress, yield, 2 mm/min             | 120            | MPa       | ISO 178      |
| Flexural Stress, break, 2 mm/min             | 120            | MPa       | ISO 178      |
| Flexural Strain, break, 2 mm/min             | 2              | %         | ISO 178      |
| Flexural Modulus, 2 mm/min                   | 8400           | MPa       | ISO 178      |
| Ball Indentation Hardness, H358/30           | 120            | MPa       | ISO 2039-1   |
| Hardness, Rockwell R                         | 111            | -         | ISO 2039-2   |
| <b>IMPACT</b>                                |                |           |              |
| Charpy Impact, unnotched, 23°C               | 29             | kJ/m²     | ISO 179/2C   |
| Charpy Impact, unnotched, -30°C              | 29             | kJ/m²     | ISO 179/2C   |
| Izod Impact, unnotched, 23°C                 | 390            | J/m       | ASTM D4812   |
| Izod Impact, unnotched, -30°C                | 390            | J/m       | ASTM D4812   |
| Izod Impact, notched, 23°C                   | 52             | J/m       | ASTM D256    |
| Izod Impact, notched, 0°C                    | 52             | J/m       | ASTM D256    |
| Izod Impact, notched, -30°C                  | 51             | J/m       | ASTM D256    |
| Izod Impact, unnotched 80°10'4 +23°C         | 25             | kJ/m²     | ISO 180/1U   |
| Izod Impact, unnotched 80°10'4 -30°C         | 25             | kJ/m²     | ISO 180/1U   |
| Izod Impact, notched 80°10'4 +23°C           | 5              | kJ/m²     | ISO 180/1A   |
| Izod Impact, notched 80°10'4 0°C             | 5              | kJ/m²     | ISO 180/1A   |
| Izod Impact, notched 80°10'4 -30°C           | 5              | kJ/m²     | ISO 180/1A   |
| Charpy 23°C, V-notch Edgew 80°10'4 sp=62mm   | 4              | kJ/m²     | ISO 179/1eA  |

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| PROPERTIES                                  | TYPICAL VALUES | UNITS                   | TEST METHODS   |
|---------------------------------------------|----------------|-------------------------|----------------|
| Charpy Impact, notched, 23°C                | 6              | kJ/m <sup>2</sup>       | ISO 179/2C     |
| Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm | 4              | kJ/m <sup>2</sup>       | ISO 179/1eA    |
| Charpy Impact, notched, -30°C               | 6              | kJ/m <sup>2</sup>       | ISO 179/2C     |
| Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm  | 45             | kJ/m <sup>2</sup>       | ISO 179/1eU    |
| Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm | 20             | kJ/m <sup>2</sup>       | ISO 179/1eU    |
| <b>THERMAL</b>                              |                |                         |                |
| Vicat Softening Temp, Rate A/50             | 220            | °C                      | ASTM D1525     |
| Vicat Softening Temp, Rate B/50             | 190            | °C                      | ASTM D1525     |
| HDT, 0.45 MPa, 3.2 mm, unannealed           | 220            | °C                      | ASTM D648      |
| HDT, 1.82 MPa, 3.2mm, unannealed            | 203            | °C                      | ASTM D648      |
| CTE, -40°C to 40°C, flow                    | 2.25E-05       | 1/°C                    | ISO 11359-2    |
| CTE, -40°C to 40°C, xflow                   | 5.9E-05        | 1/°C                    | ISO 11359-2    |
| CTE, 23°C to 80°C, flow                     | 3.E-05         | 1/°C                    | ISO 11359-2    |
| CTE, 23°C to 80°C, xflow                    | 9.5E-05        | 1/°C                    | ISO 11359-2    |
| CTE, 23°C to 150°C, flow                    | 3.01E-05       | 1/°C                    | ISO 11359-2    |
| CTE, 23°C to 150°C, xflow                   | 1.35E-04       | 1/°C                    | ISO 11359-2    |
| <b>Ball Pressure Test</b>                   |                |                         |                |
| Ball Pressure Test, 125°C +/- 2°C           | PASSES         | -                       | IEC 60695-10-2 |
| Ball Pressure Test, 175°C +/- 2°C           | PASSES         | -                       | IEC 60695-10-2 |
| Vicat Softening Temp, Rate A/50             | 220            | °C                      | ISO 306        |
| Vicat Softening Temp, Rate B/50             | 190            | °C                      | ISO 306        |
| Vicat Softening Temp, Rate B/120            | 190            | °C                      | ISO 306        |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm     | 215            | °C                      | ISO 75/Be      |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm     | 190            | °C                      | ISO 75/Ae      |
| HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm      | 220            | °C                      | ISO 75/Bf      |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm       | 190            | °C                      | ISO 75/Af      |
| Relative Temp Index, Elec                   | 120            | °C                      | UL 746B        |
| Relative Temp Index, Mech w/impact          | 125            | °C                      | UL 746B        |
| Relative Temp Index, Mech w/o impact        | 140            | °C                      | UL 746B        |
| <b>PHYSICAL</b>                             |                |                         |                |
| Specific Gravity                            | 1.7            | -                       | ASTM D792      |
| Filler Content                              | 35             | %                       | ASTM D229      |
| Mold Shrinkage on Tensile Bar, flow         | 0.3 – 0.6      | %                       | SABIC method   |
| Mold Shrinkage on Tensile Bar, xflow        | 0.4 – 1        | %                       | SABIC method   |
| Melt Flow Rate, 266°C/5.0 kgf               | 20             | g/10 min                | ASTM D1238     |
| Density                                     | 1.7            | g/cm <sup>3</sup>       | ISO 1183       |
| Water Absorption, (23°C/saturated)          | 0.94           | %                       | ISO 62-1       |
| Moisture Absorption (23°C / 50% RH)         | 0.09           | %                       | ISO 62         |
| Melt Volume Rate, MVR at 250°C/5.0 kg       | 8              | cm <sup>3</sup> /10 min | ISO 1133       |
| Melt Volume Rate, MVR at 265°C/5.0 kg       | 16             | cm <sup>3</sup> /10 min | ISO 1133       |
| Melt Viscosity, 260°C, 1500 sec-1           | 140            | Pa-s                    | ISO 11443      |
| <b>ELECTRICAL</b>                           |                |                         |                |
| Volume Resistivity                          | >1.E+15        | Ω.cm                    | ASTM D257      |
| Arc Resistance, Tungsten {PLC}              | 4              | PLC Code                | ASTM D495      |
| Hot Wire Ignition {PLC}                     | 0              | PLC Code                | UL 746A        |

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| PROPERTIES                                    | TYPICAL VALUES                | UNITS        | TEST METHODS   |
|-----------------------------------------------|-------------------------------|--------------|----------------|
| High Voltage Arc Track Rate {PLC}             | 0                             | PLC Code     | UL 746A        |
| High Ampere Arc Ign, surface {PLC}            | 0                             | PLC Code     | UL 746A        |
| Volume Resistivity                            | >1.E+15                       | $\Omega$ .cm | IEC 60093      |
| Surface Resistivity, ROA                      | >1.E+15                       | $\Omega$     | IEC 60093      |
| Dielectric Strength, in oil, 1.6 mm           | 23                            | kV/mm        | IEC 60243-1    |
| Dielectric Strength, in oil, 3.2 mm           | 20                            | kV/mm        | IEC 60243-1    |
| Relative Permittivity, 1 MHz                  | 3.1                           | -            | IEC 60250      |
| Dissipation Factor, 50/60 Hz                  | 0.0095                        | -            | IEC 60250      |
| Dissipation Factor, 1 MHz                     | 0.0128                        | -            | IEC 60250      |
| Comparative Tracking Index                    | 600                           | V            | IEC 60112      |
| Comparative Tracking Index, M                 | 175                           | V            | IEC 60112      |
| Relative Permittivity, 50/60 Hz               | 3.3                           | -            | IEC 60250      |
| Comparative Tracking Index (UL) {PLC}         | 0                             | PLC Code     | UL 746A        |
| FLAME CHARACTERISTICS                         |                               |              |                |
| UL Yellow Card Link                           | <a href="#">E45329-236615</a> | -            | -              |
| UL Recognized, 94V-2 Flame Class Rating       | 0.62                          | mm           | UL 94          |
| UL Recognized, 94V-0 Flame Class Rating       | 0.75                          | mm           | UL 94          |
| UL Recognized, 94-5VA Flame Class Rating      | 2                             | mm           | UL 94          |
| Glow Wire Flammability Index 960°C, passes at | 1                             | mm           | IEC 60695-2-12 |
| Glow Wire Ignitability Temperature, 1.0 mm    | 675                           | °C           | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 1.5 mm    | 675                           | °C           | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 2.0 mm    | 675                           | °C           | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 3.0 mm    | 775                           | °C           | IEC 60695-2-13 |
| Oxygen Index (LOI)                            | 31                            | %            | ISO 4589       |
| INJECTION MOLDING                             |                               |              |                |
| Drying Temperature                            | 110 – 120                     | °C           |                |
| Drying Time                                   | 3 – 4                         | Hrs          |                |
| Maximum Moisture Content                      | 0.02                          | %            |                |
| Melt Temperature                              | 255 – 275                     | °C           |                |
| Nozzle Temperature                            | 255 – 275                     | °C           |                |
| Front - Zone 3 Temperature                    | 255 – 265                     | °C           |                |
| Middle - Zone 2 Temperature                   | 250 – 260                     | °C           |                |
| Rear - Zone 1 Temperature                     | 245 – 255                     | °C           |                |
| Hopper Temperature                            | 40 – 60                       | °C           |                |
| Mold Temperature                              | 40 – 100                      | °C           |                |

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