

**SABIC Innovative Plastics Valox® VX4510 PBT (Europe-Africa-Middle East)**

Category : Polymer , Thermoplastic , Polyester, TP , Polybutylene Terephthalate (PBT)

**Material Notes:**

VALOX VX4510 is a flame retarded, 10% glassfiber reinforced injection moulding PBT resin.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_SABIC-Innovative-Plastics-Valox-VX4510-PBT-Europe-Africa-Middle-East.php](http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-Valox-VX4510-PBT-Europe-Africa-Middle-East.php)

| Physical Properties               | Metric                               | English                              | Comments                                     |
|-----------------------------------|--------------------------------------|--------------------------------------|----------------------------------------------|
| Specific Gravity                  | 1.50 g/cc                            | 1.50 g/cc                            | ASTM D792                                    |
| Density                           | 1.50 g/cc                            | 0.0542 lb/in <sup>3</sup>            | ISO 1183                                     |
| Filler Content                    | 10 %                                 | 10 %                                 | ASTM D229                                    |
| Moisture Absorption               | 0.0800 %                             | 0.0800 %                             | 23°C / 50% RH; ISO 62                        |
| Water Absorption at Saturation    | 0.27 %                               | 0.27 %                               | ISO 62                                       |
| Viscosity                         | 90000 cP                             | 90000 cP                             | Melt Viscosity, 260°C, 1500 sec-1; ISO 11443 |
| Linear Mold Shrinkage, Flow       | 0.0060 - 0.010 cm/cm                 | 0.0060 - 0.010 in/in                 | on Tensile Bar; SABIC Method                 |
| Linear Mold Shrinkage, Transverse | 0.0070 - 0.012 cm/cm                 | 0.0070 - 0.012 in/in                 | on Tensile Bar; SABIC Method                 |
| Melt Flow                         | 110 g/10 min                         | 110 g/10 min                         | ASTM D1238                                   |
|                                   | @Load 5.00 kg,<br>Temperature 266 °C | @Load 11.0 lb,<br>Temperature 511 °F |                                              |
| Melt Index of Compound            | 17 g/10 min                          | 17 g/10 min                          | MVR [cm <sup>3</sup> /10 min]; ISO 1133      |
|                                   | @Load 2.16 kg,<br>Temperature 250 °C | @Load 4.76 lb,<br>Temperature 482 °F |                                              |
|                                   | 55 g/10 min                          | 55 g/10 min                          | MVR [cm <sup>3</sup> /10 min]; ISO 1133      |
|                                   | @Load 5.00 kg,<br>Temperature 250 °C | @Load 11.0 lb,<br>Temperature 482 °F |                                              |
|                                   | 90 g/10 min                          | 90 g/10 min                          | MVR [cm <sup>3</sup> /10 min]; ISO 1133      |
|                                   | @Load 5.00 kg,<br>Temperature 265 °C | @Load 11.0 lb,<br>Temperature 509 °F |                                              |

| Mechanical Properties     | Metric   | English   | Comments                    |
|---------------------------|----------|-----------|-----------------------------|
| Hardness, Rockwell R      | 120      | 120       | ISO 2039-2                  |
| Hardness, H358/30         | 100 MPa  | 14500 psi | ISO 2039-1                  |
| Tensile Strength at Break | 87.0 MPa | 12600 psi | Type I, 5 mm/min; ASTM D638 |

| Mechanical Properties      | 90.0 MPa<br>Metric    | 13100 psi<br>English  | 5 mm/min; ISO 527<br>Comments             |
|----------------------------|-----------------------|-----------------------|-------------------------------------------|
| Tensile Strength, Yield    | 87.0 MPa              | 12600 psi             | Type I, 5 mm/min; ASTM D638               |
|                            | 90.0 MPa              | 13100 psi             | 5 mm/min; ISO 527                         |
| Elongation at Break        | 3.0 %                 | 3.0 %                 | 5 mm/min; ISO 527                         |
|                            | 3.0 %                 | 3.0 %                 | Type I, 5 mm/min; ASTM D638               |
|                            | 4.0 %                 | 4.0 %                 | Flexural Strain, break, 2 mm/min; ISO 178 |
| Elongation at Yield        | 3.0 %                 | 3.0 %                 | 5 mm/min; ISO 527                         |
|                            | 3.0 %                 | 3.0 %                 | Type I, 5 mm/min; ASTM D638               |
| Tensile Modulus            | 5.30 GPa              | 769 ksi               | 5 mm/min; ASTM D638                       |
|                            | 5.40 GPa              | 783 ksi               | 1 mm/min; ISO 527                         |
| Flexural Strength          | 125 MPa               | 18100 psi             | 1.3 mm/min, 50 mm span; ASTM D790         |
|                            | 135 MPa               | 19600 psi             | 2 mm/min; ISO 178                         |
| Flexural Yield Strength    | 125 MPa               | 18100 psi             | 1.3 mm/min, 50 mm span; ASTM D790         |
|                            | 140 MPa               | 20300 psi             | 2 mm/min; ISO 178                         |
| Flexural Modulus           | 4.00 GPa              | 580 ksi               | 1.3 mm/min, 50 mm span; ASTM D790         |
|                            | 4.50 GPa              | 653 ksi               | 2 mm/min; ISO 178                         |
| Izod Impact, Notched       | 0.500 J/cm            | 0.937 ft-lb/in        | ASTM D256                                 |
|                            | 0.500 J/cm            | 0.937 ft-lb/in        | ASTM D256                                 |
|                            | @Temperature 0.000 °C | @Temperature 32.0 °F  |                                           |
|                            | 0.500 J/cm            | 0.937 ft-lb/in        | ASTM D256                                 |
|                            | @Temperature -30.0 °C | @Temperature -22.0 °F |                                           |
| Izod Impact, Unnotched     | 4.00 J/cm             | 7.49 ft-lb/in         | ASTM D4812                                |
|                            | 3.15 J/cm             | 5.90 ft-lb/in         | ASTM D4812                                |
|                            | @Temperature -30.0 °C | @Temperature -22.0 °F |                                           |
| Izod Impact, Notched (ISO) | 5.00 kJ/m²            | 2.38 ft-lb/in²        | 80*10*4; ISO 180/1A                       |
|                            | 5.00 kJ/m²            | 2.38 ft-lb/in²        | 80*10*4; ISO 180/1A                       |
|                            | @Temperature 0.000 °C | @Temperature 32.0 °F  |                                           |
|                            | 5.00 kJ/m²            | 2.38 ft-lb/in²        |                                           |

| Mechanical Properties          | Metric<br>@ Temperature -30.0 °C                 | English<br>@ Temperature -22.0 °F                   | 80*10*4; ISO 180/1A<br>Comments    |
|--------------------------------|--------------------------------------------------|-----------------------------------------------------|------------------------------------|
| Izod Impact, Unnotched (ISO)   | 30.0 kJ/m <sup>2</sup>                           | 14.3 ft-lb/in <sup>2</sup>                          | 80*10*4; ISO 180/1U                |
|                                | 25.0 kJ/m <sup>2</sup><br>@Temperature -30.0 °C  | 11.9 ft-lb/in <sup>2</sup><br>@Temperature -22.0 °F | 80*10*4; ISO 180/1U                |
| Charpy Impact Unnotched        | 2.50 J/cm <sup>2</sup>                           | 11.9 ft-lb/in <sup>2</sup>                          | Edgew 80*10*4 sp=62mm; ISO 179/1eU |
|                                | 3.30 J/cm <sup>2</sup>                           | 15.7 ft-lb/in <sup>2</sup>                          | ISO 179/2C                         |
|                                | 2.00 J/cm <sup>2</sup><br>@Temperature -30.0 °C  | 9.52 ft-lb/in <sup>2</sup><br>@Temperature -22.0 °F | Edgew 80*10*4 sp=62mm; ISO 179/1eU |
|                                | 2.80 J/cm <sup>2</sup><br>@Temperature -30.0 °C  | 13.3 ft-lb/in <sup>2</sup><br>@Temperature -22.0 °F | ISO 179/2C                         |
| Charpy Impact, Notched         | 0.400 J/cm <sup>2</sup>                          | 1.90 ft-lb/in <sup>2</sup>                          | Edgew 80*10*4 sp=62mm; ISO 179/1eA |
|                                | 0.600 J/cm <sup>2</sup>                          | 2.86 ft-lb/in <sup>2</sup>                          | ISO 179/2C                         |
|                                | 0.400 J/cm <sup>2</sup><br>@Temperature -30.0 °C | 1.90 ft-lb/in <sup>2</sup><br>@Temperature -22.0 °F | Edgew 80*10*4 sp=62mm; ISO 179/1eA |
|                                | 0.600 J/cm <sup>2</sup><br>@Temperature -30.0 °C | 2.86 ft-lb/in <sup>2</sup><br>@Temperature -22.0 °F | ISO 179/2C                         |
| Taber Abrasion, mg/1000 Cycles | 45                                               | 45                                                  | CS-17, 1 kg; SABIC Method          |

| Thermal Properties              | Metric                                       | English                                       | Comments    |
|---------------------------------|----------------------------------------------|-----------------------------------------------|-------------|
| CTE, linear, Parallel to Flow   | 41.9 µm/m-°C<br>@Temperature -40.0 - 40.0 °C | 23.3 µin/in-°F<br>@Temperature -40.0 - 104 °F | ISO 11359-2 |
|                                 | 45.5 µm/m-°C<br>@Temperature 23.0 - 150 °C   | 25.3 µin/in-°F<br>@Temperature 73.4 - 302 °F  | ISO 11359-2 |
|                                 | 50.0 µm/m-°C<br>@Temperature 23.0 - 80.0 °C  | 27.8 µin/in-°F<br>@Temperature 73.4 - 176 °F  | ISO 11359-2 |
| CTE, linear, Transverse to Flow | 72.1 µm/m-°C<br>@Temperature -40.0 - 40.0 °C | 40.1 µin/in-°F<br>@Temperature -40.0 - 104 °F | ISO 11359-2 |
|                                 | 160 µm/m-°C                                  | 88.9 µin/in-°F                                |             |

| Thermal Properties                          | Metric                       | English                     | ISO 11359-2<br>Comments            |
|---------------------------------------------|------------------------------|-----------------------------|------------------------------------|
|                                             | @ Temperature 23.0 - 80.0 °C | @ Temperature 73.4 - 176 °F |                                    |
|                                             | 176 µm/m-°C                  | 97.8 µin/in-°F              | ISO 11359-2                        |
|                                             | @Temperature 23.0 - 150 °C   | @Temperature 73.4 - 302 °F  |                                    |
| Deflection Temperature at 0.46 MPa (66 psi) | 215 °C                       | 419 °F                      | Edgew 120*10*4 sp=100mm; ISO 75/Be |
|                                             | 215 °C                       | 419 °F                      | Flatw 80*10*4 sp=64mm; ISO 75/Bf   |
|                                             | 215 °C                       | 419 °F                      | unannealed; ASTM D648              |
|                                             | @Thickness 3.20 mm           | @Thickness 0.126 in         |                                    |
| Deflection Temperature at 1.8 MPa (264 psi) | 190 °C                       | 374 °F                      | Edgew 120*10*4 sp=100mm; ISO 75/Ae |
|                                             | 190 °C                       | 374 °F                      | Flatw 80*10*4 sp=64mm; ISO 75/Af   |
|                                             | 190 °C                       | 374 °F                      | unannealed; ASTM D648              |
|                                             | @Thickness 3.20 mm           | @Thickness 0.126 in         |                                    |
| Vicat Softening Point                       | 202 °C                       | 396 °F                      | Rate B/120; ISO 306                |

| Electrical Properties      | Metric          | English         | Comments       |
|----------------------------|-----------------|-----------------|----------------|
| Volume Resistivity         | 1.00e+15 ohm-cm | 1.00e+15 ohm-cm | ASTM D257      |
|                            | 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 |
| Comparative Tracking Index | 175 - 250 V     | 175 - 250 V     | UL 746A        |
| Hot Wire Ignition, HWI     | 30 - 60 sec     | 30 - 60 sec     | UL 746A        |

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