

## SABIC Innovative Plastics Valox<sup>®</sup> 359 PBT (Europe-Africa-Middle East)

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

### Material Notes:

VALOX 359 is an unreinforced, flame retarded, low warpage PBT injection moulding resin.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_SABIC-Innovative-Plastics-Valox-359-PBT-Europe-Africa-Middle-East.php](http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-Valox-359-PBT-Europe-Africa-Middle-East.php)

| Physical Properties               | Metric   | English  | Comments  |
|-----------------------------------|--|--|---|
| Specific Gravity                  | 1.32 g/cc  | 1.32 g/cc  | ASTM D792   |
| Density                           | 1.31 g/cc  | 0.0473 lb/in <sup>3</sup>                        | ISO 1183  |
| Moisture Absorption               | 0.140 %  | 0.140 %  | 23 <sup>°</sup> C / 50% RH; ISO 62                        |
| Water Absorption at Saturation    | 0.50 %   | 0.50 %   | ISO 62  |
| Viscosity                         | 260000 cP  | 260000 cP  | Melt Viscosity, 260 <sup>°</sup> C, 1500 sec-1; ISO 11443 |
| Linear Mold Shrinkage, Flow       | 0.011 - 0.018 cm/cm                              | 0.011 - 0.018 in/in                              | on Tensile Bar; SABIC Method                              |
| Linear Mold Shrinkage, Transverse | 0.0090 - 0.018 cm/cm                             | 0.0090 - 0.018 in/in                             | on Tensile Bar; SABIC Method                              |
| Melt Flow                         | 25 g/10 min                                      | 25 g/10 min                                      | ASTM D1238  |
|                                   | @Load 5.00 kg,<br>Temperature 265 <sup>°</sup> C | @Load 11.0 lb,<br>Temperature 509 <sup>°</sup> F |   |
| Melt Index of Compound            | 25 g/10 min                                      | 25 g/10 min                                      | ASTM D1238  |
|                                   | @Load 5.00 kg,<br>Temperature 266 <sup>°</sup> C | @Load 11.0 lb,<br>Temperature 511 <sup>°</sup> F |   |
| Melt Index of Compound            | 12 g/10 min                                      | 12 g/10 min                                      | MVR [cm <sup>3</sup> /10 min]; ISO 1133                   |
|                                   | @Load 5.00 kg,<br>Temperature 250 <sup>°</sup> C | @Load 11.0 lb,<br>Temperature 482 <sup>°</sup> F |   |
| Melt Index of Compound            | 22 g/10 min                                      | 22 g/10 min                                      | MVR [cm <sup>3</sup> /10 min]; ISO 1133                   |
|                                   | @Load 5.00 kg,<br>Temperature 265 <sup>°</sup> C | @Load 11.0 lb,<br>Temperature 509 <sup>°</sup> F |   |

| Mechanical Properties     | Metric   | English   | Comments                     |
|---------------------------|----------|-----------|------------------------------|
| Hardness, Rockwell R      | 113      | 113       | ISO 2039-2                   |
| Hardness, H358/30         | 113 MPa  | 16400 psi | ISO 2039-1                   |
| Tensile Strength at Break | 37.0 MPa | 5370 psi  | Type I, 50 mm/min; ASTM D638 |
|                           | 40.0 MPa | 5800 psi  |                              |

| Tensile Strength, Yield<br>Mechanical Properties | 50.0 MPa<br>Metric       | 7250 psi<br>English        | 50 mm/min; ISO 527<br>Comments |
|--|--------------------------|----------------------------|--------------------------------|
|  | 51.0 MPa                 | 7400 psi                   | Type I, 50 mm/min; ASTM D638   |
| Elongation at Break                              | 17 %                     | 17 %                       | Type I, 50 mm/min; ASTM D638   |
|  | 30 %                     | 30 %                       | 50 mm/min; ISO 527             |
| Elongation at Yield                              | 4.0 %                    | 4.0 %                      | Type I, 50 mm/min; ASTM D638   |
|  | 5.0 %                    | 5.0 %                      | 50 mm/min; ISO 527             |
| Tensile Modulus                                  | 2.05 GPa                 | 297 ksi                    | 50 mm/min; ASTM D638           |
|  | 2.05 GPa                 | 297 ksi                    | 1 mm/min; ISO 527              |
| Flexural Yield Strength                          | 75.0 MPa                 | 10900 psi                  | 2 mm/min; ISO 178              |
| Flexural Modulus                                 | 2.10 GPa                 | 305 ksi                    | 2 mm/min; ISO 178              |
| Izod Impact, Notched                             | 3.90 J/cm                | 7.31 ft-lb/in              | ASTM D256                      |
|  | 1.20 J/cm                | 2.25 ft-lb/in              | ASTM D256                      |
|  | @Temperature -30.0<br>°C | @Temperature -22.0<br>°F   |                                |
|  | 1.70 J/cm                | 3.18 ft-lb/in              | ASTM D256                      |
|  | @Temperature 0.000<br>°C | @Temperature 32.0 °F       |                                |
| Izod Impact, Unnotched                           | NB                       | NB                         | ASTM D4812                     |
|  | NB                       | NB                         | ASTM D4812                     |
|  | @Temperature -30.0<br>°C | @Temperature -22.0<br>°F   |                                |
| Izod Impact, Notched (ISO)                       | 20.0 kJ/m <sup>2</sup>   | 9.52 ft-lb/in <sup>2</sup> | 80*10*4; ISO 180/1A            |
|  | 13.0 kJ/m <sup>2</sup>   | 6.19 ft-lb/in <sup>2</sup> | 80*10*4; ISO 180/1A            |
|  | @Temperature -30.0<br>°C | @Temperature -22.0<br>°F   |                                |
|  | 15.0 kJ/m <sup>2</sup>   | 7.14 ft-lb/in <sup>2</sup> | 80*10*4; ISO 180/1A            |
|  | @Temperature 0.000<br>°C | @Temperature 32.0 °F       |                                |
| Izod Impact, Unnotched (ISO)                     | NB                       | NB                         | 80*10*4; ISO 180/1U            |
|  | NB                       | NB                         | 80*10*4; ISO 180/1U            |
|  | @Temperature -30.0<br>°C | @Temperature -22.0<br>°F   |                                |
| Charpy Impact Unnotched                          | NB                       | NB                         | ISO 179/2C                     |

| Mechanical Properties          | Metric                   | English                    | Comments                           |
|--------------------------------|--------------------------|----------------------------|------------------------------------|
|                                | NB                       | NB                         | Edgew 80*10*4 sp=62mm; ISO 179/1eU |
|                                | @Temperature -30.0<br>°C | @Temperature -22.0<br>°F   | Edgew 80*10*4 sp=62mm; ISO 179/1eU |
|                                | NB                       | NB                         | ISO 179/2C                         |
|                                | @Temperature -30.0<br>°C | @Temperature -22.0<br>°F   | ISO 179/2C                         |
| Charpy Impact, Notched         | 2.00 J/cm <sup>2</sup>   | 9.52 ft-lb/in <sup>2</sup> | Edgew 80*10*4 sp=62mm; ISO 179/1eA |
|                                | 2.00 J/cm <sup>2</sup>   | 9.52 ft-lb/in <sup>2</sup> | ISO 179/2C                         |
|                                | 1.40 J/cm <sup>2</sup>   | 6.66 ft-lb/in <sup>2</sup> | ISO 179/2C                         |
|                                | @Temperature -30.0<br>°C | @Temperature -22.0<br>°F   | ISO 179/2C                         |
|                                | 1.50 J/cm <sup>2</sup>   | 7.14 ft-lb/in <sup>2</sup> | Edgew 80*10*4 sp=62mm; ISO 179/1eA |
|                                | @Temperature -30.0<br>°C | @Temperature -22.0<br>°F   | Edgew 80*10*4 sp=62mm; ISO 179/1eA |
| Taber Abrasion, mg/1000 Cycles | 6.0                      | 6.0                        | CS-17, 1 kg; SABIC Method          |

| Thermal Properties                             | Metric                          | English                        | Comments                           |
|--|---------------------------------|--------------------------------|------------------------------------|
| CTE, linear, Parallel to Flow                  | 100 Åµm/m-Å°C                   | 55.6 Åµin/in-Å°F               | ISO 11359-2                        |
|  | @Temperature 23.0 -<br>80.0 Å°C | @Temperature 73.4 -<br>176 Å°F | ISO 11359-2                        |
|  | 100 Åµm/m-Å°C                   | 55.6 Åµin/in-Å°F               | ISO 11359-2                        |
|  | @Temperature 23.0 -<br>150 Å°C  | @Temperature 73.4 -<br>302 Å°F | ISO 11359-2                        |
| CTE, linear, Transverse to Flow                | 110 Åµm/m-Å°C                   | 61.1 Åµin/in-Å°F               | ISO 11359-2                        |
|  | @Temperature 23.0 -<br>80.0 Å°C | @Temperature 73.4 -<br>176 Å°F | ISO 11359-2                        |
|  | 110 Åµm/m-Å°C                   | 61.1 Åµin/in-Å°F               | ISO 11359-2                        |
|  | @Temperature 23.0 -<br>150 Å°C  | @Temperature 73.4 -<br>302 Å°F | ISO 11359-2                        |
| Thermal Conductivity                           | 0.180 W/m-K                     | 1.25 BTU-in/hr-ftÅ²-<br>Å°F    | ISO 8302                           |
| Deflection Temperature at 0.46 MPa<br>(66 psi) | 110 Å°C                         | 230 Å°F                        | Edgew 120*10*4 sp=100mm; ISO 75/Be |
|  | 120 Å°C                         | 248 Å°F                        | Flatw 80*10*4 sp=64mm; ISO 75/Bf   |

| Thermal Properties                          | 120 Å°C<br>Metric  | 248 Å°F<br>English  | Comments                           |
|---|--------------------|---------------------|------------------------------------|
|   | @Thickness 3.20 mm | @Thickness 0.126 in | unannealed; ASTM D648              |
| Deflection Temperature at 1.8 MPa (264 psi) | 70.0 Å°C           | 158 Å°F             | Edgew 120*10*4 sp=100mm; ISO 75/Ae |
|   | 73.0 Å°C           | 163 Å°F             | Flatw 80*10*4 sp=64mm; ISO 75/Af   |
|   | 73.0 Å°C           | 163 Å°F             | unannealed; ASTM D648              |
|   | @Thickness 3.20 mm | @Thickness 0.126 in |                                    |
| Vicat Softening Point                       | 145 Å°C            | 293 Å°F             | Rate B/50; ASTM D1525              |
|   | 145 Å°C            | 293 Å°F             | Rate B/50; ISO 306                 |
|   | 145 Å°C            | 293 Å°F             | Rate B/120; ISO 306                |

| Electrical Properties      | Metric                    | English                   | Comments            |
|----------------------------|---------------------------|---------------------------|---------------------|
| Volume Resistivity         | >= 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      |
| Dielectric Constant        | 2.7                       | 2.7                       | IEC 60250           |
|                            | @Frequency 1.00e+6 Hz     | @Frequency 1.00e+6 Hz     |                     |
|                            | 2.7                       | 2.7                       | IEC 60250           |
|                            | @Frequency 50.0 - 60.0 Hz | @Frequency 50.0 - 60.0 Hz |                     |
| Dielectric Strength        | 16.0 kV/mm                | 406 kV/in                 | in oil; IEC 60243-1 |
|                            | @Thickness 3.20 mm        | @Thickness 0.126 in       |                     |
|                            | 26.0 kV/mm                | 660 kV/in                 | in oil; IEC 60243-1 |
|                            | @Thickness 1.60 mm        | @Thickness 0.0630 in      |                     |
|                            | 33.0 kV/mm                | 838 kV/in                 | in oil; IEC 60243-1 |
|                            | @Thickness 0.800 mm       | @Thickness 0.0315 in      |                     |
| Dissipation Factor         | 0.0020                    | 0.0020                    | IEC 60250           |
|                            | @Frequency 50.0 - 60.0 Hz | @Frequency 50.0 - 60.0 Hz |                     |
|                            | 0.010                     | 0.010                     | IEC 60250           |
|                            | @Frequency 1.00e+6 Hz     | @Frequency 1.00e+6 Hz     |                     |
| Comparative Tracking Index | 250 V                     | 250 V                     | IEC 60112           |

| Electrical Properties      | 250 - 400 V<br>Metric | 250 - 400 V<br>English | UL 746A<br>Comments |
|----------------------------|-----------------------|------------------------|---------------------|
| Hot Wire Ignition, HWI     | >= 120 sec            | >= 120 sec             | UL 746A             |
| High Amp Arc Ignition, HAI | 15 - 30 arcs          | 15 - 30 arcs           | UL 746A             |

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