

SABIC Innovative Plastics Valox® 420 PBT

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

Material Notes:

30% GR, excellent strength, stiffness and dimensional stability. High heat resistance. Appliance handles, spotlights, electric motors, connectors.

Order this product through the following link:

http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-Valox-420-PBT.php

| Physical Properties | Metric | English | Comments |
|-----------------------------------|--|---|------------------------------|
| Specific Gravity | 1.53 g/cc | 1.53 g/cc | ASTM D792 |
| Density | 1.53 g/cc | 0.0553 lb/in ³ | ASTM D792 |
| Filler Content | 30 % | 30 % | ASTM D229 |
| Water Absorption | 0.090 % @Time 86400 sec | 0.090 % @Time 24.0 hour | ASTM D570 |
| Moisture Absorption | 0.0800 % | 0.0800 % | 23°C / 50% RH; ISO 62 |
| Linear Mold Shrinkage, Flow | 0.0030 - 0.0070 cm/cm | 0.0030 - 0.0070 in/in | on Tensile Bar; SABIC Method |
| | 0.0030 - 0.0050 cm/cm @Thickness 1.50 - 3.20 mm | 0.0030 - 0.0050 in/in @Thickness 0.0591 - 0.126 in | SABIC Method |
| | 0.0030 - 0.0080 cm/cm @Thickness 3.20 mm | 0.0030 - 0.0080 in/in @Thickness 0.126 in | SABIC Method |
| | 0.0050 - 0.0080 cm/cm @Thickness 3.20 - 4.60 mm | 0.0050 - 0.0080 in/in @Thickness 0.126 - 0.181 in | SABIC Method |
| Linear Mold Shrinkage, Transverse | 0.0050 - 0.010 cm/cm | 0.0050 - 0.010 in/in | on Tensile Bar; SABIC Method |
| | 0.0040 - 0.0060 cm/cm @Thickness 1.50 - 3.20 mm | 0.0040 - 0.0060 in/in @Thickness 0.0591 - 0.126 in | SABIC Method |
| | 0.0060 - 0.0090 cm/cm @Thickness 3.20 - 4.60 mm | 0.0060 - 0.0090 in/in @Thickness 0.126 - 0.181 in | SABIC Method |
| | 0.0050 - 0.010 cm/cm @Thickness 3.20 mm | 0.0050 - 0.010 in/in @Thickness 0.126 in | SABIC Method |
| | 17 g/10 min | 17 g/10 min | |

| Physical Properties | Metric | English | ISO 1133 |
|------------------------|---------------------------------------|---------------------------------------|---|
| | @Load 2.16 kg, Temperature 250 Å°C | @Load 4.76 lb, Temperature 482 Å°F | |
| Melt Index of Compound | 13 g/10 min | 13 g/10 min | MVR [cm ³ /10 min]; ISO 1133 |
| | @Load 2.16 kg, Temperature 250 Å°C | @Load 4.76 lb, Temperature 482 Å°F | |

| Mechanical Properties | Metric | English | Comments |
|---------------------------|---------------------------|---------------------------|-----------------------------------|
| Hardness, Rockwell R | 118 | 118 | ASTM D785 |
| | 118 | 118 | ISO 2039-2 |
| Hardness, H358/30 | 122 MPa | 17700 psi | ISO 2039-1 |
| Tensile Strength at Break | 120 MPa | 17400 psi | Type I, 5 mm/min; ASTM D638 |
| | 125 MPa | 18100 psi | 5 mm/min; ISO 527 |
| Tensile Strength, Yield | 120 MPa | 17400 psi | Type I, 5 mm/min; ASTM D638 |
| | 125 MPa | 18100 psi | 5 mm/min; ISO 527 |
| Elongation at Break | 2.0 % | 2.0 % | 5 mm/min; ISO 527 |
| | 2.7 % | 2.7 % | Type I, 5 mm/min; ASTM D638 |
| Elongation at Yield | 2.0 % | 2.0 % | 5 mm/min; ISO 527 |
| | 2.7 % | 2.7 % | Type I, 5 mm/min; ASTM D638 |
| Tensile Modulus | 9.30 GPa | 1350 ksi | 5 mm/min; ASTM D638 |
| | 9.30 GPa | 1350 ksi | 1 mm/min; ISO 527 |
| Flexural Strength | 189 MPa | 27400 psi | 1.3 mm/min, 50 mm span; ASTM D790 |
| Flexural Yield Strength | 195 MPa | 28300 psi | 1.3 mm/min, 50 mm span; ASTM D790 |
| | 195 MPa | 28300 psi | 2 mm/min; ISO 178 |
| Flexural Modulus | 7.58 GPa | 1100 ksi | 1.3 mm/min, 50 mm span; ASTM D790 |
| | 8.50 GPa | 1230 ksi | 2 mm/min; ISO 178 |
| Izod Impact, Notched | 0.850 J/cm | 1.59 ft-lb/in | ASTM D256 |
| | 0.800 J/cm | 1.50 ft-lb/in | ASTM D256 |
| | @Temperature -30.0 Å°C | @Temperature -22.0 Å°F | ASTM D256 |
| Izod Impact, Unnotched | 8.01 J/cm | 15.0 ft-lb/in | ASTM D4812 |

| Mechanical Properties | Metric | English | Comments |
|--------------------------------|--------------------------|----------------------------|------------------------------------|
| Izod Impact, Notched (ISO) | 8.00 kJ/m ² | 3.33 ft-lb/in ² | 80*10*4; ISO 180/1A |
| | 7.00 kJ/m ² | 3.33 ft-lb/in ² | 80*10*4; ISO 180/1A |
| | @Temperature -30.0 °C | @Temperature -22.0 °F | |
| Izod Impact, Unnotched (ISO) | 45.0 kJ/m ² | 21.4 ft-lb/in ² | 80*10*4; ISO 180/1U |
| | 45.0 kJ/m ² | 21.4 ft-lb/in ² | 80*10*4; ISO 180/1U |
| | @Temperature -30.0 °C | @Temperature -22.0 °F | |
| Charpy Impact Unnotched | 4.50 J/cm ² | 21.4 ft-lb/in ² | Edgew 80*10*4 sp=62mm; ISO 179/1eU |
| | 4.50 J/cm ² | 21.4 ft-lb/in ² | Edgew 80*10*4 sp=62mm; ISO 179/1eU |
| | @Temperature -30.0 °C | @Temperature -22.0 °F | |
| Charpy Impact, Notched | 0.500 J/cm ² | 2.38 ft-lb/in ² | Edgew 80*10*4 sp=62mm; ISO 179/1eA |
| | 0.500 J/cm ² | 2.38 ft-lb/in ² | Edgew 80*10*4 sp=62mm; ISO 179/1eA |
| | @Temperature -30.0 °C | @Temperature -22.0 °F | |
| Dart Drop, Total Energy | 8.00 J | 5.90 ft-lb | ASTM D3763 |
| | @Temperature 23.0 °C | @Temperature 73.4 °F | |
| Taber Abrasion, mg/1000 Cycles | 19 | 19 | CS-17, 1 kg; ASTM D1044 |

| Electrical Properties | Metric | English | Comments |
|-----------------------|------------------------------|------------------------------|----------------|
| Volume Resistivity | >= 1.00e+15 ohm-cm | >= 1.00e+15 ohm-cm | IEC 60093 |
| | >= 3.20e+16 ohm-cm | >= 3.20e+16 ohm-cm | ASTM D257 |
| Surface Resistance | >= 1.00e+15 ohm | >= 1.00e+15 ohm | ROA; IEC 60093 |
| Dielectric Constant | 3.1 | 3.1 | IEC 60250 |
| | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz | |
| | 3.1 | 3.1 | IEC 60250 |
| | @Frequency 50.0 - 60.0 Hz | @Frequency 50.0 - 60.0 Hz | |
| | 3.7 | 3.7 | ASTM D150 |
| | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz | |

| Electrical Properties | Metric | English | Comments |
|--------------------------------------|---------------------------|---------------------------|-------------------------|
| | @Frequency 100 Hz | @Frequency 100 Hz | ASTM D150 |
| Dielectric Strength | 16.0 kV/mm | 406 kV/in | in oil; IEC 60243-1 |
| | @Thickness 3.20 mm | @Thickness 0.126 in | |
| | 18.7 kV/mm | 475 kV/in | in air; ASTM D149 |
| | @Thickness 3.20 mm | @Thickness 0.126 in | |
| | 19.0 kV/mm | 483 kV/in | short time; IEC 60243-1 |
| | @Thickness 1.00 mm | @Thickness 0.0394 in | |
| | 24.0 kV/mm | 610 kV/in | in oil; IEC 60243-1 |
| | @Thickness 1.60 mm | @Thickness 0.0630 in | |
| | 24.8 kV/mm | 630 kV/in | in oil; ASTM D149 |
| | @Thickness 1.60 mm | @Thickness 0.0630 in | |
| | 28.0 kV/mm | 711 kV/in | in oil; IEC 60243-1 |
| | @Thickness 0.800 mm | @Thickness 0.0315 in | |
| Dissipation Factor | 0.0010 | 0.0010 | IEC 60250 |
| | @Frequency 50.0 - 60.0 Hz | @Frequency 50.0 - 60.0 Hz | |
| | 0.0010 | 0.0010 | IEC 60250 |
| | @Frequency 100 Hz | @Frequency 100 Hz | |
| | 0.0020 | 0.0020 | ASTM D150 |
| | @Frequency 100 Hz | @Frequency 100 Hz | |
| | 0.010 | 0.010 | IEC 60250 |
| | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz | |
| | 0.020 | 0.020 | ASTM D150 |
| | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz | |
| Arc Resistance | 120 - 180 sec | 120 - 180 sec | Tungsten; ASTM D495 |
| Comparative Tracking Index | 300 V | 300 V | IEC 60112 |
| | >= 600 V | >= 600 V | UL 746A |
| High Voltage Arc-Tracking Rate, HVTR | 10.0 - 25.4 mm/min | 0.394 - 1.00 in/min | UL 746A |

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