

SABIC Innovative Plastics EXTEM VH1003 PEI Copolymer (Europe-Africa-Middle East)

Category : Polymer , Thermoplastic , Polyetherimide (PEI)

Material Notes:

Transparent, Thermoplastic Polyimide (TPI) resin. Glass transition Temp. (Tg) of 247°C. This resin has thinwall FR capability and has a UL94 V0 listing. Resin is RoHS compliant and halogen free according VDE/DIN 472 part 815. Resin is subject to Commerce Control Laws U.S. 15CFR Chapter VII, Part 774 and Annex I of Reg. EC 428/2009 as ECCN1C008.

Order this product through the following link:

http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-EXTEM-VH1003-PEI-Copolymer-Europe-Africa-Middle-East.php

| Physical Properties | Metric | English | Comments |
|-----------------------------------|---|---|---|
| Specific Gravity | 1.30 g/cc | 1.30 g/cc | ASTM D792 |
| Density | 1.30 g/cc | 0.0470 lb/in ³ | ISO 1183 |
| Moisture Absorption | 0.600 % | 0.600 % | 23°C / 50% RH; ISO 62 |
| Water Absorption at Saturation | 1.75 % | 1.75 % | ISO 62 |
| Linear Mold Shrinkage, Flow | 0.0050 - 0.0070 cm/cm | 0.0050 - 0.0070 in/in | on Tensile Bar; SABIC Method |
| | 0.0050 - 0.0070 cm/cm @Thickness 3.20 mm | 0.0050 - 0.0070 in/in @Thickness 0.126 in | SABIC Method |
| Linear Mold Shrinkage, Transverse | 0.0050 - 0.0070 cm/cm @Thickness 3.20 mm | 0.0050 - 0.0070 in/in @Thickness 0.126 in | SABIC Method |
| Melt Flow | 15.5 g/10 min @Load 6.60 kg, Temperature 367 °C | 15.5 g/10 min @Load 14.6 lb, Temperature 693 °F | ASTM D1238 |
| Melt Index of Compound | 8.0 g/10 min @Load 5.00 kg, Temperature 360 °C | 8.0 g/10 min @Load 11.0 lb, Temperature 680 °F | MVR [cm ³ /10 min]; ISO 1133 |

| Mechanical Properties | Metric | English | Comments |
|---------------------------|----------|-----------|-----------------------------|
| Hardness, H358/30 | 140 MPa | 20300 psi | ISO 2039-1 |
| Tensile Strength at Break | 78.0 MPa | 11300 psi | 5 mm/min; ISO 527 |
| | 96.0 MPa | 13900 psi | Type I, 5 mm/min; ASTM D638 |
| Tensile Strength, Yield | 95.0 MPa | 13800 psi | 5 mm/min; ISO 527 |
| | 96.0 MPa | 13900 psi | Type I, 5 mm/min; ASTM D638 |

| Elongation at Break Mechanical Properties | 16.8 % Metric | 16.8 % English | 5 mm/min; ISO 527 Comments |
|--|------------------------|----------------------------|------------------------------------|
| | 50 % | 50 % | Type I, 5 mm/min; ASTM D638 |
| Elongation at Yield | 6.0 % | 6.0 % | Type I, 5 mm/min; ASTM D638 |
| | 8.5 % | 8.5 % | 5 mm/min; ISO 527 |
| Tensile Modulus | 3.11 GPa | 451 ksi | 1 mm/min; ISO 527 |
| | 3.51 GPa | 509 ksi | 5 mm/min; ASTM D638 |
| Flexural Strength | 159 MPa | 23100 psi | 1.3 mm/min, 50 mm span; ASTM D790 |
| Flexural Yield Strength | 123 MPa | 17800 psi | 2 mm/min; ISO 178 |
| | 155 MPa | 22500 psi | 2.6 mm/min, 100 mm span; ASTM D790 |
| Flexural Modulus | 3.08 GPa | 447 ksi | 2 mm/min; ISO 178 |
| | 3.17 GPa | 460 ksi | 1.3 mm/min, 50 mm span; ASTM D790 |
| Izod Impact, Notched | 0.690 J/cm | 1.29 ft-lb/in | ASTM D256 |
| | 0.740 J/cm | 1.39 ft-lb/in | ASTM D256 |
| | @Temperature -30.0 °C | @Temperature -22.0 °F | |
| Izod Impact, Unnotched | NB | NB | ASTM D4812 |
| Izod Impact, Notched (ISO) | 4.00 kJ/m ² | 1.90 ft-lb/in ² | 80*10*4; ISO 180/1A |
| | 5.00 kJ/m ² | 2.38 ft-lb/in ² | 80*10*4; ISO 180/1A |
| | @Temperature -30.0 °C | @Temperature -22.0 °F | |
| Izod Impact, Unnotched (ISO) | NB | NB | 80*10*4; ISO 180/1U |
| | NB | NB | 80*10*4; ISO 180/1U |
| | @Temperature -30.0 °C | @Temperature -22.0 °F | |
| Charpy Impact Unnotched | NB | NB | Edgew 80*10*4 sp=62mm; ISO 179/1eU |
| | NB | NB | Edgew 80*10*4 sp=62mm; ISO 179/1eU |
| | @Temperature -30.0 °C | @Temperature -22.0 °F | |
| Dart Drop, Total Energy | 33.0 J | 24.3 ft-lb | ASTM D3763 |
| | @Temperature 23.0 °C | @Temperature 73.4 °F | |

| Thermal Properties | Metric | English | Comments |
|--------------------|--------|---------|----------|
|--------------------|--------|---------|----------|

| Thermal Properties | 50.0 $\mu\text{m}/\text{m}\cdot\text{C}$ Metric | 27.8 $\mu\text{in}/\text{in}\cdot\text{F}$ English | Comments ASTM E 831 |
|---|--|---|----------------------------------|
| CTE, linear, Parallel to Flow | @Temperature -40.0 - 150 $^{\circ}\text{C}$ | @Temperature -40.0 - 302 $^{\circ}\text{F}$ | |
| | 50.0 $\mu\text{m}/\text{m}\cdot\text{C}$ | 27.8 $\mu\text{in}/\text{in}\cdot\text{F}$ | ISO 11359-2 |
| | @Temperature 23.0 - 150 $^{\circ}\text{C}$ | @Temperature 73.4 - 302 $^{\circ}\text{F}$ | |
| CTE, linear, Transverse to Flow | 50.0 $\mu\text{m}/\text{m}\cdot\text{C}$ | 27.8 $\mu\text{in}/\text{in}\cdot\text{F}$ | ASTM E 831 |
| | @Temperature -40.0 - 150 $^{\circ}\text{C}$ | @Temperature -40.0 - 302 $^{\circ}\text{F}$ | |
| | 50.0 $\mu\text{m}/\text{m}\cdot\text{C}$ | 27.8 $\mu\text{in}/\text{in}\cdot\text{F}$ | ISO 11359-2 |
| | @Temperature 23.0 - 150 $^{\circ}\text{C}$ | @Temperature 73.4 - 302 $^{\circ}\text{F}$ | |
| Thermal Conductivity | 0.220 W/m-K | 1.53 BTU-in/hr-ft ² - $^{\circ}\text{F}$ | ASTM E 1530 |
| Deflection Temperature at 0.46 MPa (66 psi) | 237 $^{\circ}\text{C}$ | 459 $^{\circ}\text{F}$ | unannealed; ASTM D648 |
| | @Thickness 6.40 mm | @Thickness 0.252 in | |
| Deflection Temperature at 1.8 MPa (264 psi) | 228 $^{\circ}\text{C}$ | 442 $^{\circ}\text{F}$ | Flatw 80*10*4 sp=64mm; ISO 75/Af |
| | 217 $^{\circ}\text{C}$ | 423 $^{\circ}\text{F}$ | unannealed; ASTM D648 |
| | @Thickness 3.20 mm | @Thickness 0.126 in | |
| | 230 $^{\circ}\text{C}$ | 446 $^{\circ}\text{F}$ | unannealed; ASTM D648 |
| | @Thickness 6.40 mm | @Thickness 0.252 in | |
| Vicat Softening Point | 238 $^{\circ}\text{C}$ | 460 $^{\circ}\text{F}$ | Rate B/120; ISO 306 |
| | 242 $^{\circ}\text{C}$ | 468 $^{\circ}\text{F}$ | Rate B/50; ASTM D1525 |
| | 242 $^{\circ}\text{C}$ | 468 $^{\circ}\text{F}$ | Rate B/50; ISO 306 |
| Glass Transition Temp, Tg | 247 $^{\circ}\text{C}$ | 477 $^{\circ}\text{F}$ | |
| Oxygen Index | 45 % | 45 % | ISO 4589 |
| Glow Wire Test | 850 $^{\circ}\text{C}$ | 1560 $^{\circ}\text{F}$ | IEC 60695-2-13 |
| | 960 $^{\circ}\text{C}$ | 1760 $^{\circ}\text{F}$ | IEC 60695-2-12 |
| | @Thickness 3.20 mm | @Thickness 0.126 in | |

| Optical Properties | Metric | English | Comments |
|--------------------|--------------------|---------------------|------------|
| Haze | 2.0 % | 2.0 % | ASTM D1003 |
| | @Thickness 2.54 mm | @Thickness 0.100 in | |

| Transmission Visible Optical Properties | 58 % Metric | 58 % English | 2.54 mm; ASTM D1003 Comments |
|--|----------------|-----------------|---------------------------------|
|--|----------------|-----------------|---------------------------------|

| Electrical Properties | Metric | English | Comments |
|----------------------------|---------------------------|---------------------------|-------------------|
| Dielectric Constant | 3.41 | 3.41 | ASTM D150 |
| | @Frequency 100 Hz | @Frequency 100 Hz | |
| | 3.41 | 3.41 | ASTM D150 |
| | @Frequency 1000 Hz | @Frequency 1000 Hz | |
| Dielectric Strength | 17.0 kV/mm | 432 kV/in | in oil; ASTM D149 |
| | @Thickness 3.20 mm | @Thickness 0.126 in | |
| Dissipation Factor | 0.0010 | 0.0010 | IEC 60250 |
| | @Frequency 1000 Hz | @Frequency 1000 Hz | |
| | 0.0070 | 0.0070 | IEC 60250 |
| | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz | |
| | 0.0080 | 0.0080 | IEC 60250 |
| | @Frequency 100 Hz | @Frequency 100 Hz | |
| | 0.025 | 0.025 | IEC 60250 |
| | @Frequency 50.0 - 60.0 Hz | @Frequency 50.0 - 60.0 Hz | |
| Comparative Tracking Index | 175 V | 175 V | IEC 60112 |

| Descriptive Properties | Value | Comments |
|-----------------------------------|--------|----------------|
| Ball Pressure Test, 125°C +/- 2°C | Passes | IEC 60695-10-2 |

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