

APTIV™ FILMS XPI A106

General Information

Product Description

APTIV XPI™ Film A106 is an unfilled semi-crystalline film made from VICTREX™ PEEK polymer. The film provides durability and reliability in the most demanding application environments by incorporating all of the outstanding properties of VICTREX™ PEEK (PolyEtherEtherKetone) polymer in a thin film format. It is typically used as high-voltage e-motor stator insulation, enabling excellent thermal management as well as high electrical performance and maximized copper fill factor, resulting in enhanced e-motor efficiency.

APTIV XPI™ Film A106 meets the requirements of high-voltage (800 V) slot liner applications such as:

- Long-term thermal stability in high electric field strength rotating machines
- Excellent dielectric performance for primary and secondary insulation concepts in 800+ V electric machines
- Well-engineered mechanical properties for use on automated assembly lines and processing equipment
- High compatibility to a wide range of impregnation resins
- Optimum wear resistance for impregnation resin-free electric machine concepts
- Outstanding chemical resistance and hydrolysis resistance to water, ATF, oils and cooling fluids to support all cooling concepts, from water to direct oil immersion.

Material Properties

| Physical | Nominal Value | Unit | Test Method |
|---|---------------|-------------------|-------------|
| Density ¹ (23°C) | 1.30 | g/cm ³ | ISO 1183 |
| Water Absorption ² Equilibrium, 23°C, 0.0500 mm, 50% RH | 0.040 | % | ISO 62 |
| ShrinkageMD ³ (200°C, 50.0 µm) | < 0.50 | % | |
| ShrinkageTD ³ (200°C, 50.0 µm) | < 0.50 | % | |
| Films | Nominal Value | Unit | Test Method |
| Film Thickness - Recommended / Available | 125 | µm | |
| Tensile Modulus | | | ISO 527 |
| MD : 23°C, 125 µm | 2400 | MPa | |
| TD : 23°C, 125 µm | 2300 | MPa | |
| Tensile Stress | | | ISO 527 |
| MD : Break, 23°C, 125 µm | 120 | MPa | |
| TD : Break, 23°C, 125 µm | 120 | MPa | |
| Tensile Elongation | | | ISO 527 |
| MD : Break, 23°C, 125 µm | > 150 | % | |
| TD : Break, 23°C, 125 µm | > 150 | % | |
| Thermal | Nominal Value | Unit | Test Method |
| Glass Transition Temperature (Onset) | 143 | °C | ISO 11357 |
| Melting Temperature | 343 | °C | ISO 11357 |
| CLTE - Flow ⁴ (0.0500 mm) | 3.5E-5 | cm/cm/°C | ASTM D696 |
| Thermal Conductivity ⁵ | 0.25 | W/m/K | ASTM E1461 |
| RTI Elec | 240 | °C | UL 746B |

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| Electrical | Nominal Value | Unit | Test Method |
|---|---------------|---------|-------------|
| Volume Resistivity (23°C) | 1.0E+16 | ohms·cm | IEC 60093 |
| Comparative Tracking Index (23°C) | PLC 4 | | IEC 60112 |
| Breakdown Voltage ⁶ (23°C) | 18.9 | kV | ASTM D149 |
| Breakdown VoltageRetention ⁷ (180°C) | > 95.0 | % | IEC 60243 |
| Dielectric Constant ⁸ (23°C) | 3.20 | | IEC 60250 |
| Dissipation Factor ⁹ (23°C) | 3.0E-3 | | IEC 60250 |
| Partial Discharge Inception Voltage | | | IEC 60270 |
| 23°C | 1267 | V | |
| 180°C | 967 | V | |

Additional Information

Product Dimensions

APTIV XPI™ Film A106 by Victrex is offered in a standard width of 610 mm and a standard roll outer diameter of 450 mm. The standard roll length of 1050 m is supplied on a 6" (152 mm) cardboard core.

For non-standard formats of APTIV XPI™ Film A106, please contact the Victrex sales team. Victrex can assist customers by referring them to our network of vendors. These vendors offer a variety of high-precision services, including slitting, coating, laminating, and other ancillary kitting solutions.

Notes

¹ Crystalline

² 24 hrs

³ TM-VX-84

⁴ below Tg

⁵ Through Plane

⁶ 1 kV/s

⁷ 180 °C, 500 V/s

⁸ 1kHz

⁹ 1MHz

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