

APICAL® 50AV



APICAL polyimide film possesses an excellent balance of physical, thermal, electrical and chemical properties over a wide range of temperatures (-269°C to 400°C). More precise thickness control, superior web flatness, plus improved adhesion and excellent dimensional stability are standard features with Apical polyimide films.

Characteristics

- Excellent thermal and electrical stability
- Optimal flexibility
- Ideal elongation

Applications

- Polyimide base materials for FPC
- Motor generator insulation
- Wire and cable insulation
- Barcode label
- Pressure sensitive tape

Construction

| Items | Mils | Microns |
|-------------------|------|---------|
| Nominal Thickness | 0.50 | 12.7 |

Mechanical Properties

| Items | Typical Values | Test Method |
|---------------------------------|----------------|-------------|
| Tensile Strength MD, kpsi (MPa) | 42 (293) | ASTM D882 |
| Tensile Strength TD, kpsi (MPa) | 42 (293) | ASTM D882 |
| Tensile Modulus MD, kpsi (GPa) | 400 (2.8) | ASTM D882 |
| Tensile Modulus TD, kpsi (GPa) | 400 (2.8) | ASTM D882 |
| Elongation MD (TD), % | 104 (100) | ASTM D882 |

Thermal Properties

| Items | Typical Values | Test Method |
|---|----------------|----------------|
| Heat Shrinkage MD % | 0.09 | 200 °C – 2 hrs |
| Heat Shrinkage TD % | 0.02 | 200 °C – 2 hrs |
| Coefficient of Thermal Expansion MD, ppm/°C | 32 | TMA 100–200 °C |
| Coefficient of Thermal Expansion TD, ppm/°C | 31 | TMA 100–200 °C |

Electrical Properties

| Items | Typical Values | Test Method |
|-----------------------------|----------------|-------------|
| Dielectric Strength, KV/mil | 9.5 | ASTM D149 |
| Dielectric Constant, 1kHz | 3.0 | ASTM D150 |
| Dissipation Factor, 1kHz | 0.0030 | ASTM D150 |
| Volume Resistivity, Ohm-cm | >1E+16 | ASTM D257 |

Physical Properties

| Items | Typical Values | Test Method |
|--|----------------|-----------------|
| Water Absorption, % | 2.7 | IPC-TM650-2.6.2 |
| Coefficient of Humidity Expansion Typical, ppm/%RH | 16 | HMA |
| Density, g/cm ³ | 1.42 | ASTM D1505 |
| Yield, ft ² /lb (m ² /kg) | 267 (55) | |

The data noted in these technical data sheets are given as examples and are not intended to be read as guaranteed values .

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