

# APICAL® 120AF616

**APICAL®** Polyimide possesses an excellent balance of Physical, thermal, electrical and chemical properties over a wide range of temperature (-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. This coated version of Apical has a thermal stability up to 200°C.

## Characteristics

Improved Bond/Peel Strengths  
Optimal Flexibility  
Excellent Dielectric Properties  
Ideal Elongation

## Applications

Aircraft Wire and Cable  
Traction Equipment  
Down Hole Motors  
Magnet Wire  
Mining Equipment

## Construction

| Items             | Mils | Microns |
|-------------------|------|---------|
| Nominal Thickness | 1.20 | 30.5    |
| FP                | 0.10 | 2.5     |
| PI                | 1.00 | 25.4    |
| FP                | 0.10 | 2.5     |

## Mechanical Properties

| Items                           | Units     | Test Method |
|---------------------------------|-----------|-------------|
| Tensile Strength MD, kpsi (MPa) | 35 (239)  | ASTM D882   |
| Tensile Strength TD, kpsi (MPa) | 36 (245)  | ASTM D882   |
| Tensile Modulus MD, kpsi (GPa)  | 270 (1.9) | ASTM D882   |
| Tensile Modulus TD, kpsi (GPa)  | 270 (1.9) | ASTM D882   |
| Elongation MD (TD), %           | 116 (113) | ASTM D882   |

## Thermal Properties

| Items                                        | Units     | Test Method         |
|----------------------------------------------|-----------|---------------------|
| Heat Shrinkage MD %                          | 0.09      | 200 dC – 2 hrs      |
| Heat Shrinkage TD %                          | 0.03      | 200 dC – 2 hrs      |
| Heat Seal Strength,<br>FEP-FEP, ginch (g/cm) | 1400 (51) | 350dC, 20sec, 20psi |

### Electrical Properties

| Items                       | Units  | Test Method |
|-----------------------------|--------|-------------|
| Dielectric Strength, KV/mil | 6.9    | ASTM D149   |
| Dielectric Constant, 1kHz   | 3.1    | ASTM D150   |
| Dissipation Factor, 1kHz    | 0.0014 | ASTM D150   |
| Volume Resistivity, Ohm-cm  | >1E+16 | ASTM D257   |

### Physical Properties

| Items                                                 | Units    | Test Method     |
|-------------------------------------------------------|----------|-----------------|
| Water Absorption, %                                   | 2.1      | IPC-TM650-2.6.2 |
| Coefficient of Humidity<br>Expansion Typical, ppm/%RH | 9        | HMA             |
| Density, g/cm <sup>3</sup>                            | 1.53     | ASTM D1505      |
| Yield, ft <sup>2</sup> /lb (m <sup>2</sup> /kg)       | 106 (22) |                 |

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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