

Polyimide Film

Polyimide (PI) film is a strong, flexible polymer known for its excellent thermal stability, mechanical strength, and electrical insulation properties, making it ideal for demanding applications like aerospace, electronics, and high-temperature insulation. It can withstand extreme temperatures and is resistant to abrasion and chemicals, with common brand names including Kapton® and Apical™.

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Key properties and features

- **Thermal stability:**

Can withstand a wide range of temperatures, from cryogenic conditions up to 400C400 raised to the composed with power cap C400 (752F752 raised to the composed with power cap F752).

- **Electrical insulation:**

A high-performance dielectric material that can be used in high-voltage environments and is often resistant to corona discharge.

- **Mechanical strength:**

Offers excellent flexibility, durability, and resistance to tearing, abrasion, and other mechanical stresses.

- **Chemical resistance:**

Remains stable and strong when exposed to a variety of chemicals.

- **Dimensional stability:**

Maintains its shape and form even when subjected to wide temperature fluctuations.

Common applications

- **Aerospace:**

Used in multi-layer insulation blankets, wiring, and other components that must perform reliably in extreme environments.

- **Electronics:**

Found in flexible circuits, insulating tapes, and protective films for display screens, such as mobile phones and LCD TVs.

- **Heating elements:**

Used to create lightweight, uniform heating elements for various applications.

- **High-performance tapes:**

Engineered for use in pressure-sensitive tapes that require superior film attributes.

- **High-speed communications:**

Modified polyimide films are essential for 5G antennas and other high-frequency applications to minimize signal loss.