DUPONT

Kapton® Polyimide Film and Pyralux® Laminated Circuit Materials Provide Superior Performance in Satellite/Spacecraft Applications

In outer space, where extremes of heat, cold and solar radiation are the norm, aerospace designers rely upon Kapton® film and Pyralux® Laminates. These innovative material solutions have the unique ability to maintain their combination of mechanical and electrical properties under the harshest of conditions.

DuPont™ Kapton® polyimide films are available in multiple thicknesses and can be modified to increase thermal or electrical conductivity or made in different colors such as black or white. The color is throughout the thickness of the Kapton® film eliminating the worries of coated color layers cracking, peeling or abrading away. With more than 50 years of demonstrated performance, reliability and durability Kapton® is a solution you may depend upon.

Kapton® Films

Kapton® XC
Conductive black film, precisely loaded with conductive carbons to produce films with tightly controlled surface resistivities

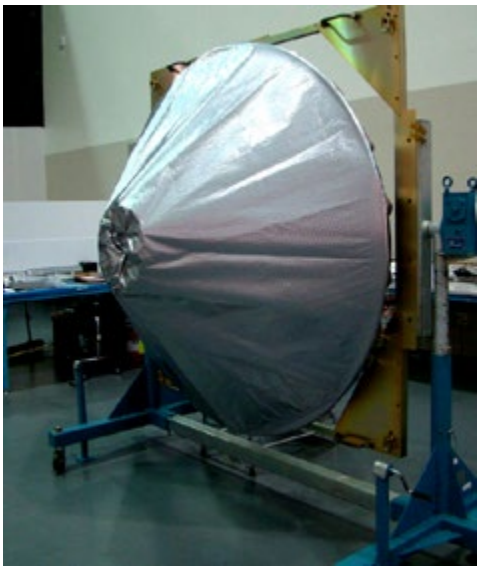
Kapton® WS and Kapton® MW
Opaque glossy and matte, non-conductive white film used primarily in MLI blankets

Kapton® CS
Transparent colorless with high optical clarity and high glass transition temperature

Kapton® CB
Opaque glossy, non-conductive black film used in satellite insulation systems

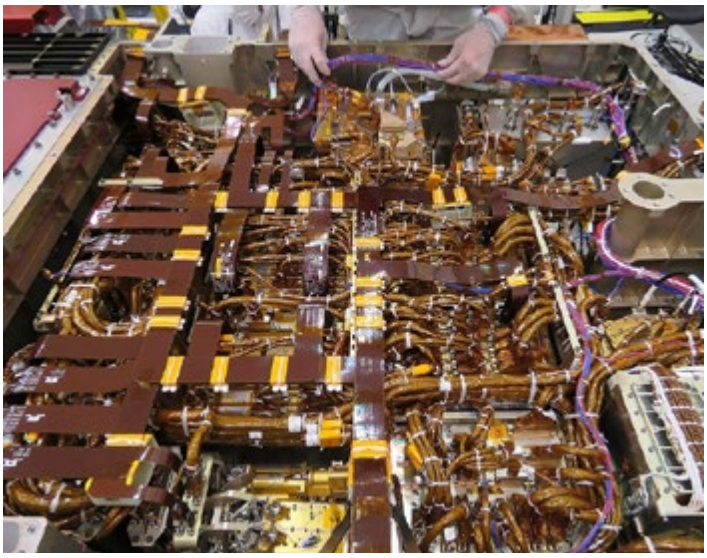
Kapton® B
Opaque, black substrate film offering low light transmission, reflectivity and superior durability

Kapton® HN
General-purpose film used in temperature ranges from -269°C (-452°F) to 400°C (752°F)



Multilayer insulation (MLI) blankets are part of the Thermal Control System and can be found surrounding nearly every spacecraft. The complex layering system prevents both excessive heating and heat loss. The outer layer is aluminized Kapton®, a transparent polyimide film with an amber tint; the silvery-color aluminum on its backside gives the impression of metallic gold from the front.

The Pyralux® family of branded products expands possibilities for flexible circuits, embedded passives and thermal performance in the demanding environments found in space. The Pyralux® portfolio includes a diverse collection of core dielectric materials and customized constructions that enable low-loss for high-speed, high-frequency applications, high service temperature performance and options for single and double-sided, multilayer flex, rigid, and rigid-flex designs.



Pyralux® AP used in flat flexible cable interconnects on the Perseverance Mars Rover

DuPont™ Kapton® polyimide films

Click the link/header for more information.

DuPont™ Pyralux® Laminated Circuit Materials

Click the link/header for more information.

Pyralux® Laminates

Pyralux® AP

All-polyimide copper clad laminate with excellent thermal, chemical and mechanical properties. It is ideal for use in applications requiring advanced performance, such as low dissipation loss, robust thermal resistance and high reliability.

Pyralux® LF

Acrylic-based line of copper clad laminates, coverlays, bondplys and sheet adhesives that have been the industry standard in high reliability applications for over 35 years with a proven record of consistency and dependability.

Pyralux® FR

Acrylic-based flame retardant copper clad laminates, coverlays, bonpdplys and sheet adhesives for products and applications requiring UL rating.

Pyralux® TK

Fluoropolymer/polyimide composite copper clad laminate and bonding film system for high-speed digital and high-frequency flexible circuit applications.

Pyralux® HT

All-polyimide bonding film with the highest IPC service temperature available today (225°C)

Pyralux® AG

All-polyimide copper clad laminate that is offered in both sheets and rolls. The roll format enables connector free flexible circuits that can span the longest solar arrays found on space vehicles.

Interra® HK04J

A thin copper clad laminate with a polyimide dielectric designed to function as an embedded capacitance layer in printed wiring boards (PWBs).

Temprion® thermal management materials

Electrically insulating films/laminates and adhesive thermal tapes offer excellent thermal conductivity, lower thermal resistance, higher heat dissipation and improved thermal stability during continuous operation.

Flat flexible cables made with Pyralux® can be folded or even crumpled without affecting performance, and can be anywhere from a few feet to over 100 feet long.

DUPONT™

Electronics & Industrial

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