

DuPont™ Kapton® XC

Black Anti-Static

Polyimide Film

Description

DuPont™ Kapton® XC polyimide films are electrically conductive films, which are precisely loaded with conductive carbons to produce films with tightly controlled surface resistivities. The resistive property is throughout the bulk of the film, so it cannot be cracked, rubbed off or otherwise easily damaged, as is often the case with surface coatings or metalizations.

XC film has proven performance in numerous satellite applications where it provides both thermal and anti-static control. XC film retains all the outstanding inertness, radiation and temperature resistance of other Kapton® polyimide films, which make them ideal for use in space or other extreme environments.

Characteristics

- Black matte surface
- Electrically conductive
- Durable from -270°C to 240°C
- Thermally durable to 325°C in oxygen-free environments

Constructions

100XC10E7 is our standard offering for anti-static applications. It is a one mil film with a nominal surface resistivity of 10^7 ohm/sq. We also offer more conductive XC films, which are discussed in our DuPont™ Kapton® XC Black Conductive Polyimide Film bulletin. Custom constructions are also available, and can be produced in thickness from 1 to 5 mil, and with surface resistances from 20 to 10^9 ohms/sq.

Packaging

Kapton® 100XC10E7 film is supplied in rolls with a maximum width of 48 inches. Please contact DuPont™ Kapton® product information for details concerning available packaging at 1-800-237-4357.

Processing

Kapton® XC polyimide film can be processed using normal roll-to-roll processing. Typical properties for Kapton® XC are shown in **Table 1**.

Storage Conditions/Shelf Life

Proper storage of Kapton® film will ensure its performance. Kapton® XC should not be exposed to ultraviolet radiation as from direct sunlight or in conditions of high humidity for extended periods of time. The storage life will be decreased dramatically under these conditions. The shelf life for Kapton® in typical warehouse temperature will be in excess of 20 years. Rolls should be kept wrapped in storage to prevent surface contamination.

Safe Handling

Proper care should be taken when handling Kapton® polyimide film. Processing at high temperatures requires adequate ventilation and air circulation.

XC films are electrically conductive. Caution should be taken when working around electric to avoid shorting.

Scrap film should be disposed of in a landfill.



The miracles of science™

Table 1
Typical Properties of Kapton® 100XC10E7 Polyimide Film

Property	Typical Value	Test Method
Mechanical		
Tensile Strength, Kpsi	17	ASTM D-882-91, A
Tensile Modulus, Kpsi	480	ASTM D-882-91
Elongation to break, %	27	ASTM D-882-91
Tear Strength, initial, lb/mil	1.8	ASTM D-1505-90
Density, g/cc	1.41	ASTM D-1505-90
Optical		
Solar Absorbance	0.93	
Emissivity at 77°F	0.84 normal 0.78 hemispherical	
Light transmission	opaque	
Electrical		
Surface Resistivity Aim, ohms/sq.	5 X 10 ⁶	ETS 870 Electrometer at 100 V
Max for narrow range quality	5 X 10 ⁷	
Min for narrow range quality	5 X 10 ⁵	
Max for broad range quality	1 X 10 ⁹	
Min for broad range quality	1 X 10 ⁵	
Thermal		
Meltpoint, polyimide, °C	none	ASTM-E-794-85 (1989)

DuPont High Performance Materials · U.S. Rt. 23 & DuPont Road · Circleville, OH 43113

(800) 237-4357

In Europe: 352-3666-5399

Visit us on the Internet at: <http://www.dupont.com/kapton>

The information given herein is based on data believed to be reliable, but DuPont makes no warranties express or implied as to its accuracy and assumes no liability arising out of its use by others. This publication is not to be taken as a license to operate under, or recommendation to infringe, any patent.

Caution: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see "DuPont Medical Caution Statement," H-50102.

Copyright © 2002 E.I. du Pont de Nemours and Company. All rights reserved.

Kapton® is a registered trademark of DuPont.



The miracles of science™