DuPont™ Kapton® XC Black Conductive

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 applications where a precisely controlled surface resistivity was needed. It provides a durable resistivity, which is only slightly affected by temperature and humidity changes. XC film retains all the outstanding inertness, radiation and temperature resistance of other Kapton® polyimide films, which make them ideal for use in 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

The standard conductive XC films are 160XC and 275XC. These are 1.6 mil and 2.75 mil thick films with nominal resistivities of 370 and 260 ohms/sq. respectively. 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. We also offer custom two or three layer constructions, where one layer is not conductive.

Packaging

Conductive XC films are supplied in rolls with a maximum width of 43 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.

Table 1
Typical Properties of Kapton® 160XC and 275XC Polyimide Film

Property	Typical Value	Test Method
Mechanical		
Tensile Strength, md/td Kpsi	16/14	ASTM D-882-91, A
Tensile Modulus, Kpsi	520	ASTM D-882-91
Elongation to break, %	17	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, 160XC, ohms/sq.	370	Four point probe
Maximum	430	
Minimum	300	
Surface Resistivity Aim, 275XC, ohms/sq.	260	Four point probe
Maximum	290	
Minimum	230	
Thermal		
Meltpoint, polyimide, °C	none	ASTM-E-794-85 (1989)

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H-78315 (1/02) Printed in U.S.A.

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