

## PolyFLEX™ Substrates

### Flexible Substrates for Electronics Applications

Polyonics manufactures clear and white top coated polyimide and polyester films for a wide variety of applications related to the electronics industry. The flexible substrates are designed to be printed with conductive, semi-conductive and resistive inks and include antistatic options.

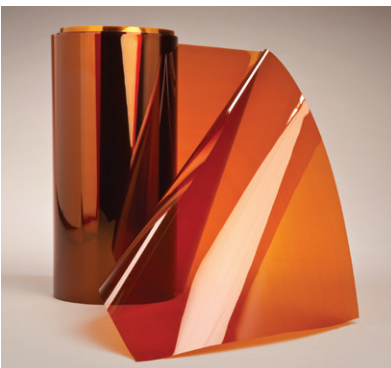
#### Applications include:

- Flexible drug delivery devices
- ESD-Safe™ electronics packaging
- Static sensitive surface protection
- Temperature sensors
- Flexible heaters
- Electrical circuits
- Flexible audio devices
- RFID antennas
- Flex circuits
- Flexible LEDs

### Printable Surfaces

Polyimide is the preferred material for applications requiring a high degree of dimensional stability after exposure to extreme temperatures (up to 300°C). In addition, polyimide offers a high resistance to chemicals, is light weight and flexible making it an ideal substrate for a wide variety of flexible electronics applications. Polyester is lower cost option that provides similar characteristics at lower temperatures.

Polyonics PolyFLEX flexible substrates include clear and white printable coatings that produce hi-resolution images using conductive inks in Flexo and Screen printing processes. The proprietary polymer coatings have been evaluated by leading conductive ink suppliers as providing increased ink receptivity, superior ink adhesion and high resolution printing.



### Antistatic Technology

Polyonics ESD-Safe polyimide and polyester (PET) films include durable, non-metallic static dissipative top coats with surface resistances of  $>10^5$  and  $<10^9$  Ohms that comply with the ANSI/ESD S.20.20, IEC 61340 and JEDEC JESD 625B standards. The materials help designers and manufacturers package and protect their most static sensitive devices from electrostatic charges arising from both human contact (HBM) and charged devices (CDM) and are valuable elements in the successful ESD control plans of global electronics EMSs, ODMs, converters and OEMs.



White Over Amber



Highly Reflective White Over Black



Clear Over Amber

Product	Film	Thickness	Coating	Printing
XF-101	Amber Polyimide	50 $\mu\text{m}$	High Gloss Clear	Flexo / Screen
XF-102	Amber Polyimide	125 $\mu\text{m}$	High Gloss Clear	Flexo / Screen
XF-103	Amber Polyimide	25 $\mu\text{m}$	High Gloss White	Flexo
XF-104	Amber Polyimide	50 $\mu\text{m}$	High Gloss White	Flexo / Screen
XF-105	Amber Polyimide	125 $\mu\text{m}$	High Gloss White	Flexo / Screen
XF-106	Black Polyimide	25 $\mu\text{m}$	Highly Reflective White	Flexo
XF-107	Amber Polyimide	25 $\mu\text{m}$	Highly Reflective, High Temperature White	Flexo
XF-114	Amber Polyimide	25 $\mu\text{m}$	ESD-Safe	Flexo
XF-115	Amber Polyimide	25 $\mu\text{m}$	High Gloss Clear	Flexo
XF-118	Amber Polyimide	50 $\mu\text{m}$	ESD-Safe	Flexo / Screen
XF-122	Transparent clear polyester	25 $\mu\text{m}$	ESD-Safe	Flexo
XF-124	Opaque white polyester	50 $\mu\text{m}$	ESD-Safe	Flexo / Screen

Features	Benefits
Printable Topcoats	Premium Interface for Ink Adhesion
High Reflectivity	Maximizes Light Output
High Opacity	Minimizes Light Leakage
Static Dissipative Surface Resistance $>10^5$ and $< 10^9$ Ohms	Protects ESD Sensitive Devices
Optical Transmission Density ( $< 2.5$ Density)	Ideal for Displays, LEDs, OLEDs, etc.
High Gloss White (75 G.U.)	Maximizes Light Reflectivity
Chemical and Thermal Resistant	High Durability in Harsh Environments
Hi-Resolution Top Coats	High-Resolution Printability
High Dielectric Strength	Prevents Dielectric Breakdown
REACH and RoHS Compliant	Environmentally Safe
Thin, Flexible, Smooth	Low Profile, Portable Electronics, High Ink Adhesion
Roll to Roll Manufacturing	Efficient, High Volume, Low Cost
Thermally Stable	Minimal dimensional change up to 300°C



Flexible LED Array With Highly Reflective White Substrate

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