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.
<table>
<thead>
<tr>
<th>Product</th>
<th>Film</th>
<th>Thickness</th>
<th>Coating</th>
<th>Printing</th>
</tr>
</thead>
<tbody>
<tr>
<td>XF-101</td>
<td>Amber Polyimide</td>
<td>50 µm</td>
<td>High Gloss Clear</td>
<td>Flexo / Screen</td>
</tr>
<tr>
<td>XF-102</td>
<td>Amber Polyimide</td>
<td>125 µm</td>
<td>High Gloss Clear</td>
<td>Flexo / Screen</td>
</tr>
<tr>
<td>XF-103</td>
<td>Amber Polyimide</td>
<td>25 µm</td>
<td>High Gloss White</td>
<td>Flexo</td>
</tr>
<tr>
<td>XF-104</td>
<td>Amber Polyimide</td>
<td>50 µm</td>
<td>High Gloss White</td>
<td>Flexo</td>
</tr>
<tr>
<td>XF-105</td>
<td>Amber Polyimide</td>
<td>125 µm</td>
<td>High Gloss White</td>
<td>Flexo / Screen</td>
</tr>
<tr>
<td>XF-106</td>
<td>Black Polyimide</td>
<td>25 µm</td>
<td>Highly Reflective White</td>
<td>Flexo</td>
</tr>
<tr>
<td>XF-107</td>
<td>Amber Polyimide</td>
<td>25 µm</td>
<td>Highly Reflective, High Temperature White</td>
<td>Flexo</td>
</tr>
<tr>
<td>XF-114</td>
<td>Amber Polyimide</td>
<td>25 µm</td>
<td>ESD-Safe</td>
<td>Flexo</td>
</tr>
<tr>
<td>XF-115</td>
<td>Amber Polyimide</td>
<td>25 µm</td>
<td>High Gloss Clear</td>
<td>Flexo</td>
</tr>
<tr>
<td>XF-118</td>
<td>Amber Polyimide</td>
<td>50 µm</td>
<td>ESD-Safe</td>
<td>Flexo / Screen</td>
</tr>
<tr>
<td>XF-122</td>
<td>Transparent clear polyester</td>
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<td>ESD-Safe</td>
<td>Flexo</td>
</tr>
<tr>
<td>XF-124</td>
<td>Opaque white polyester</td>
<td>50 µm</td>
<td>ESD-Safe</td>
<td>Flexo / Screen</td>
</tr>
</tbody>
</table>

**Features**

- **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**

For additional technical information, please contact: info@polyonics.com