



Conductive Black CP1TM Polyimide

Lower RF loss than other black and conductive black polyimides

NeXolve's Conductive Black CP1TM Polyimide is filled with carbon nanoparticles to produce a conductive black polyimide material with lower RF loss than other black and conductive black polyimides. Conductive Black CP1TM Polyimide exhibits very high optical density (>4) and light blocking. It is useful in applications requiring static dissipation, as it exhibits ESD-level surface resistivity. Conductive Black CP1TM Polyimide also exhibits high emissivity, surpassing 0.80 at 1 mil thickness. This material can be sprayed and cast into a variety of shapes using low-temperature curing (< 100 °C) for solvent removal. Conductive Black CP1TM Polyimide is available as a liquid casting resin or film product.

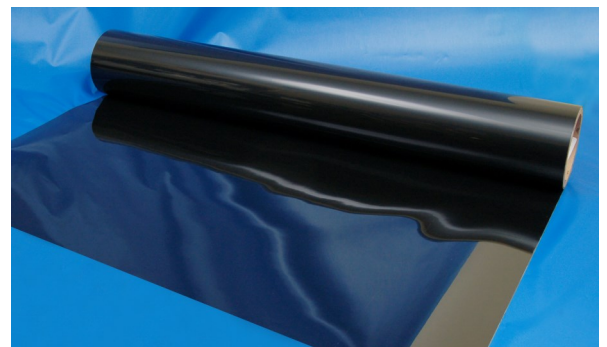
Characteristics

- High optical density
- High Infrared emissivity
- High heat stability
- Low moisture uptake
- Bonds directly to metals and metal oxides (liquid)
- Conductive and non-conductive grades available
- Available as a film or liquid resin



Applications

- Electronics
- Advanced composites
- Space structures
- Thermal protective layer for aerospace applications
- Paint replacement
- Industrial tapes



Conductive Black CP1TM Polyimide liquid resin and continuous roll

Conductive Black CP1™ Polyimide

| Physical and Mechanical Properties | ASTM Method | Value | Units |
|--|-------------|-----------|-------------------|
| Tensile Strength (2 mil; 23°C) | D882-02 | 140 (20) | MPa (ksi) |
| Young's Modulus (23°C) | D882-02 | 6.3 (909) | GPa (ksi) |
| Tensile Elongation at break (2mil; 23°C) | D882-02 | 6.7 | % |
| Density | D792-08 | 1.52 | g/cm ³ |

| Electrical Properties | ASTM Method | Value | Units |
|-----------------------|-------------|----------------------------------|-------|
| Surface Resistivity | D257-91 | 10 ⁵ —10 ⁹ | Ohm/□ |

| Optical Properties | ASTM Method | Value | Units |
|---|----------------------|-------|-------|
| Solar Absorptance (1 mil) | E903-96 ¹ | 0.95 | - |
| Solar Transmittance (1 mil) | E903-96 ¹ | 0.00 | - |
| Solar Reflectance (1 mil) | E903-96 ¹ | 0.05 | - |
| Infrared Emissivity (hemispherical) (0.5 mil) | E408-71 | 0.83 | - |

¹ Data weighted to air mass zero solar irradiance values in ASTM E490-00a

| Thermal Properties | ASTM Method | Value | Units |
|---------------------------------|-------------|-------|--------|
| Linear CTE (1 mil; -75°C—225°C) | E831-06 | 58 | ppm/°C |

Material Availability

- Film thicknesses of 0.2 mil and greater
- Continuous rolled films up to 60 inches width
- Custom formulations available
- Surface resistivity can be tailored to meet your needs
- Vapor deposited coatings available upon request
- Liquid Resin with viscosities between 150—10,000 cP
- Conductive Black CP1™ Polyimide is a highly customizable material. Contact us with your specific needs today

Warranty. The information contained herein is believed to be accurate and reliable. However, the user is responsible for determining the suitability and use of the final formulations/products. NeXolve warrants that its products will meet specifications, but not merchantability or fitness for use.

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