



## **NovaClear<sup>®</sup> Polyimide**

### **High temperature colorless polyimide with low yellowness index**

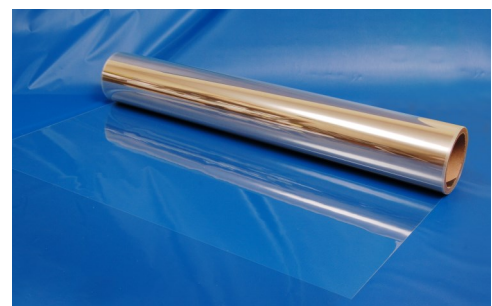
NovaClear<sup>®</sup> Polyimide is a transparent, colorless polyimide with temperature durability comparable to many traditional amber polyimides. NovaClear<sup>®</sup> has a low yellowness index and high  $T_g$  which make this material suitable for use in display applications with high temperatures. NovaClear<sup>®</sup> is available as a film, liquid resin, or raw polymer powder. Liquid NovaClear<sup>®</sup> resin can be direct coated onto many substrates; however, unlike traditional polyimide resins, no high temperature cure is required for this material. NovaClear<sup>®</sup> can be custom formulated with pigments, dyes and many other additive chemistries to meet the needs of many applications. Contact NeXolve today to learn how NovaClear<sup>®</sup> can work for you.

### **Characteristics**

- High  $T_g$
- Highly transparent
- Low Yellowness Index
- Low moisture uptake
- Low temperature cure
- Solvent soluble
- Vacuum coating compatible

### **Applications**

- Dielectric layer for microelectronics
- Advanced composites
- Space structures
- Displays
- Thermal control for aerospace applications



*NovaClear<sup>®</sup> Polyimide optic membrane and film roll*

# Typical Properties of NovaClear® Polyimide

## Physical and Mechanical Properties

Property	ASTM Method	Value	Units
Tensile Strength (1 mil; 23°C)	D882-02	142 (21)	MPa (ksi)
Young's Modulus (23°C)	D882-02	4.8 (698)	GPa (ksi)
Tensile Elongation at Break (1 mil; 23°C)	D882-02	5	%
Density	D792-08	1.4	g/cm <sup>3</sup>
Water Absorption (24 hr immersion)	D570-98	0.4	%
Dielectric constant (10 GHz)	-	2.4-2.5	-
Surface Resistivity	D257-91	> 10 <sup>12</sup>	Ohm/□
Volume Resistivity	D257-91	> 10 <sup>9</sup>	Ohm*cm

## Optical Properties

Solar Absorptance (1 mil)	E903-96 <sup>1</sup>	0.08	-
Solar Transmittance (1 mil)	E903-96 <sup>1</sup>	0.83	-
Solar Reflectance (1 mil)	E903-96 <sup>1</sup>	0.09	-
Average % transmission 400-780 nm (1 mil)	-	88	%
50% Transmission UV Cutoff (1 mil)	-	400	nm
Haze (1 mil)	D1003-11	0.4	%
Yellowness Index (1 mil)	D1925-70	8.0	-
Infrared Emissivity (hemispherical, 1 mil)	E408-13	0.51	-

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

## Thermal Properties

Glass Transition Temp. (DSC)	E1356-03	335 (635)	°C (°F)
Linear CTE (1 mil; -115°C—+250°C)	E831-06	38	ppm/°C
Shrinkage (1 mil, 200°C, 1 hour)	D2305-10	0.38	%

## Material Availability

- NovaClear® Polyimide is available as a raw powder, liquid resin, or film
- 2.5—25 micron film thicknesses available. Other thicknesses available upon request
- Continuous rolls of film up to 60 inches wide
- NovaClear® Polyimide film can be supplied with many different metal and dielectric coatings
- Material is available as tape with choice of pressure sensitive adhesive chemistries
- NovaClear® 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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