



Optinox[®] SR Films and Coatings

Highly UV durable with excellent weatherability

Optinox[®] SR is a fluorinated, crosslinked urethane material supplied as a 2-part liquid resin or film product. The excellent weather resistance, UV durability, and anti-corrosion properties of Optinox[®] SR make it a good candidate for many demanding applications. As a liquid resin, Optinox[®] SR can be dip coated, spray coated, roller coated or flow cast onto a variety of substrates and has excellent adhesion to many metals and polymers. Superior stain resistance and high optical clarity of Optinox[®] SR make it a great choice as a protective overlamine film in the graphics market. Optinox[®] SR liquid resin and film can be custom formulated to meet the needs of almost any market. Contact NeXolve today to learn how Optinox[®] SR can work for you.

Characteristics

- Liquid Resin or Film Products Available
- Low Modulus and High Modulus Formulations Available
- Does NOT Contain Chlorine
- Cure Temperature < 100 °C
- Highly Transparent—Clear and UV Blocking Formulations
- Excellent Weather and Corrosion Resistance
- Stain Resistant
- UV Resistant
- UV Blocking Formulations Available
- Castable, Sprayable, Thermoformable

Applications

- UV Protective Overlamine
- Corrosion Resistant Coating





Optinox[®] SR Films and Coatings

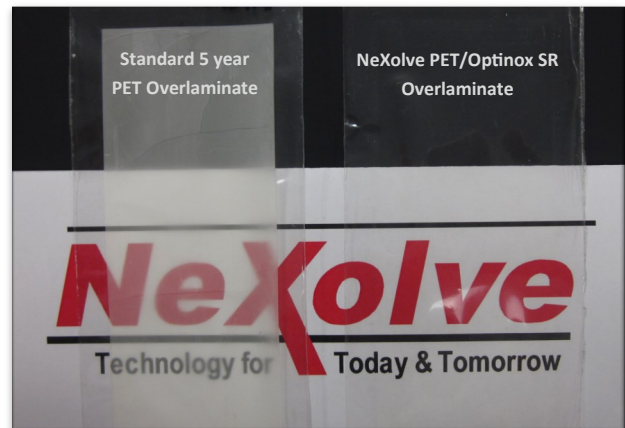
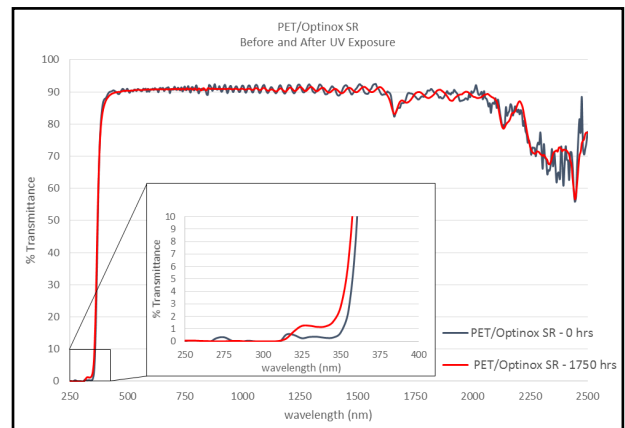
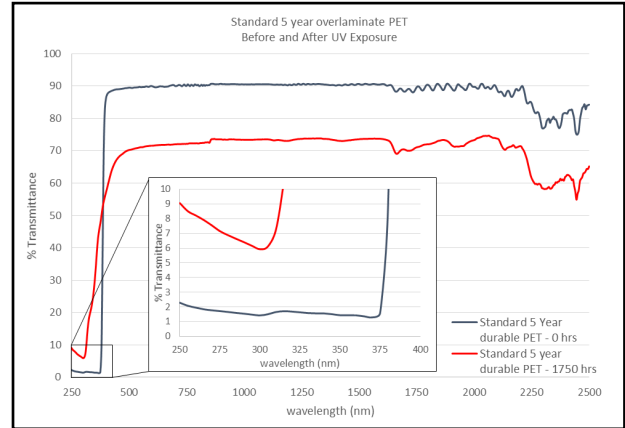
Characteristics

- Film Products Available in Multiple Coating Thicknesses
- Low Modulus and High Modulus Formulations Available
- Does NOT Contain Chlorine
- Highly Transparent
- Excellent Weather and Corrosion Resistance
- Stain Resistant
- Minimal to No Chalking and Hazing
- UV Stable
- UV Blocking Formulations Available
- UV Transparent Formulations Available

UV Exposure Testing

- Excellent UV Protective Overlaminates
- Samples Exposed 1750 hours at 1.5 W/m² @ 340 nm
- Standard 5 year PET UV Protective Overlaminates Fail at 500 Hours (5 year equivalent exposure)
- PET/Optinox SR Overlaminates Unchanged After 1750 Hours
- PET/Optinox SR Overlaminates Predicted to be Effective Longer Than 15 year Lifecycle

Photos of samples after 1750 hours of UV exposure. Standard 5 year overlaminates with severe chalking/haze and no longer UV blocking (left), PET/Optinox SR with no effect on haze, still blocking UV radiation (right)



Optinox® SR Films and Coatings—High Modulus

Physical and Mechanical Properties	ASTM Method	Optinox SR Clear	Optinox SR UV Blocking	Optinox SR White	Units
Tensile Strength (1 mil; 23°C)	D882-02	43 (6)	40 (6)	48 (7)	MPa (ksi)
Young's Modulus (23°C)	D882-02	1.3 (192)	1.5 (211)	1.7 (242)	GPa (ksi)
Tensile Elongation at break (1 mil; 23°C)	D882-02	5	4	5	%
Density	D792-08	1.43	1.22	1.51	g/cm ³
Water Absorption (24 hr immersion)	D570-98	0.2	0.2	0.2	%
Surface Resistivity	D257-91	> 10 ¹²	> 10 ¹²	> 10 ¹²	Ohm/□

Optical Properties	ASTM Method	Optinox SR Clear	Optinox SR UV Blocking	Optinox SR White	Units
Solar Absorptance (1 mil)	E903-96 ¹	0.00	0.06	0.10	-
Solar Transmittance (1 mil)	E903-96 ¹	0.93	0.87	0.26	-
Solar Reflectance (1 mil)	E903-96 ¹	0.07	0.07	0.64	-
50% Transmission UV Cutoff (1 mil)	-	288	376	N/A	nm
Average Percent Transmission 380-780 nm (1 mil)	-	93	92	19	%
Haze (1 mil)	D1003-11	0.2	0.3	N/A	%
Infrared Emissivity (hemispherical) (1 mil)	E408-71	0.52	0.50	0.69	-
L*a*b* (1 mil; C/2°)	E1164-09a	N/A	N/A	92.2/-1.2/-1.0	-
Yellowness Index	D1925-70	0.4	0.5	N/A	-

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

Thermal Properties	ASTM Method	Optinox SR Clear	Optinox SR UV Blocking	Optinox SR White	Units
CTE (-125—+25 °C; 1 mil)	E831-06	83	83	-	ppm/°C
Glass Transition Temperature (1 mil)	-	55	55	-	°C

Material Availability

- ◆ 1 mil film thickness
Other thicknesses available upon request
- ◆ Custom pigmentation and dyeing available (white, black, etc.)
- ◆ Continuous rolled films up to 60 inches wide and lengths up to 1000 feet
- ◆ Vapor deposited coatings available upon request
- ◆ Liquid Resin is supplied as a 2-part system available in lab-scale and production quantities
- ◆ Optinox® SR 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.

For more information contact:
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Phone: 256-836-7780
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Optinox® SR Films and Coatings—Low Modulus

Physical and Mechanical Properties	ASTM Method	Optinox SR Clear	Optinox SR UV Blocking	Optinox SR White	Units
Tensile Strength (1 mil; 23°C)	D882-02	35 (5)	30 (4)	32 (5)	MPa (ksi)
Young's Modulus (23°C)	D882-02	127 (18)	74 (11)	238 (35)	MPa (ksi)
Tensile Elongation at break (1 mil; 23°C)	D882-02	112	114	102	%
Density	D792-08	1.21	1.23	1.45	g/cm ³
Water Absorption (24 hr immersion)	D570-98	0.2	0.2	0.2	%
Surface Resistivity	D257-91	> 10 ¹²	> 10 ¹²	> 10 ¹²	Ohm/□

Optical Properties	ASTM Method	Optinox SR Clear	Optinox SR UV Blocking	Optinox SR White	Units
Solar Absorptance (1 mil)	E903-96 ¹	0.01	0.06	0.09	-
Solar Transmittance (1 mil)	E903-96 ¹	0.93	0.87	0.26	-
Solar Reflectance (1 mil)	E903-96 ¹	0.07	0.07	0.65	-
50% Transmission UV Cutoff (1 mil)	-	288	378	N/A	nm
Average Percent Transmission 380-780 nm (1 mil)	-	93	92	18	%
Haze (1 mil)	D1003-11	0.5	1.5	N/A	%
Infrared Emissivity (hemispherical) (1 mil)	E408-71	0.53	0.53	0.67	-
L*a*b* (1 mil; C/2°)	E1164-09a	N/A	N/A	93.3/-1.1/-1.2	-
Yellowness Index	D1925-70	0.4	0.7	N/A	-

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

Thermal Properties	ASTM Method	Optinox SR Clear	Optinox SR UV Blocking	Optinox SR White	Units
CTE (-125—+25 °C; 1 mil)	E831-06	94	94	-	ppm/°C
Glass Transition Temperature (1 mil)	-	18	18	-	°C

Material Availability

- ◆ 1 mil film thickness
Other thicknesses available upon request
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