



## Scotchshield™ Ultra Safety and Security Window Films

These safety and security window films are made using the patented micro-layered polyester film from 3M. They offer significantly more tear and penetration resistance strength than conventional PET films.

### Physical Properties

	<b>SCLARL150</b>	<b>Ultra 400 Series *</b>	<b>ULTRA600</b>
<b>Film Thickness</b>	.002 inches nominal (.051 mm)	.004 inches nominal (.1 mm)	.006 inches nominal (.152 mm)
<b>Micro-layers</b>	13	26	39
<b>Graves Area Tear<sup>1</sup></b>	> 340 Lbs. % (> 155 kg %)	> 780 Lbs. % (> 355 kg %)	> 1,150 Lbs. % (> 523 kg %)
<b>Young's Modulus<sup>2</sup></b>	> 500k PSI (> 3.45x10 <sup>9</sup> pascals)	> 500k PSI (> 3.45 x10 <sup>9</sup> pascals)	> 500k PSI (> 3.45 x10 <sup>9</sup> pascals)
<b>Tensile Strength</b>	30,000 PSI (2.07x10 <sup>8</sup> pascals)	30,000 PSI (2.07x10 <sup>8</sup> pascals)	30,000 PSI (2.07x10 <sup>8</sup> pascals)
<b>Break Strength</b>	60 Lbs. per inch width (10.7 kg/cm)	120 Lbs. per inch width (21.4 kg/cm)	180 Lbs. Per inch width (32.1 kg/cm)
<b>Elongation (Stretch)</b>	140%	140%	140%
<b>PPT (Puncture Propagation Tear)<sup>3</sup></b>	2.0 Lbs. (.91 kg)	8.7 Lbs. (4.0 kg)	19.2 Lbs. (8.7 kg)
<b>Safety Impact Tests CPSC 16CFR ANSI Z97.1</b>	Category I (150 ft. lbs.) Unlimited	Category II (400 ft. lbs.) Unlimited	Category II (400 ft. lbs.) Unlimited
<b>Adhesive Strength After Weathering<sup>4</sup></b>	> 2,500 grams per inch (>984 gr/cm) > 3,500 grams per inch (>1,378 gr/cm)	> 2,500 grams per inch (>984 gr/cm) > 3,500 grams per inch (>1,378 gr/cm)	> 2,500 grams per inch (>984 gr/cm) > 3,500 grams per inch (>1,378 gr/cm)
<b>Abrasion Resistance<sup>5</sup> (100 cycles)</b>	< 6% Change in Haze	< 6% Change in Haze	< 6% Change in Haze
<b>Surface Burn Characteristics<sup>6</sup></b>	Class A Interior Use	Class A Interior Use	Class A Interior Use
<b>Building Code Compliance</b>	BOCA	BOCA	NA

\* The Ultra 400 Series includes the following films:  
**SCLARL400, S20SIAR400, S35NEAR400, & S50NEAR400**

<sup>1</sup> ASTM D-1004-94a

Initial Tear Resistance of Plastic Film and Sheeting (Graves Area)

<sup>2</sup> ASTM D882-95a

Tensile Properties of Thin Plastic Sheeting (this method covers Young's modulus, tensile strength, break strength, and elongation). Young's Modulus measures resistance to stretch, or give of a material. The lower the value the more flexible the material. For example, a rubber band would have a YM < 100k, whereas for polystyrene > 1,000k.

<sup>3</sup> ASTM D-2582-93

Puncture-Propagation Tear Resistance of Plastic Film and Sheeting

<sup>4</sup> CPSC 1201.4

Accelerated Weathering for Plastics using 1200 hours Xenon Lamp Exposure

<sup>5</sup> ASTM D-1044

Standard Method of Test for Resistance of Transparent Plastics to Surface Abrasion

<sup>6</sup> ASTM E-84

Surface Burn Characteristics of Building Materials

### Consumer Safety and Light Management

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