



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

	SCLARL150	Ultra 400 Series *	ULTRA600
Film Thickness	.002 inches nominal (.051 mm)	.004 inches nominal (.1 mm)	.006 inches nominal (.152 mm)
Micro-layers	13	26	39
Graves Area Tear¹	> 340 Lbs. % (> 155 kg %)	> 780 Lbs. % (> 355 kg %)	> 1,150 Lbs. % (> 523 kg %)
Young's Modulus²	> 500k PSI (> 3.45x10 ⁹ pascals)	> 500k PSI (> 3.45 x10 ⁹ pascals)	> 500k PSI (> 3.45 x10 ⁹ pascals)
Tensile Strength	30,000 PSI (2.07x10 ⁸ pascals)	30,000 PSI (2.07x10 ⁸ pascals)	30,000 PSI (2.07x10 ⁸ pascals)
Break Strength	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)
Elongation (Stretch)	140%	140%	140%
PPT (Puncture Propagation Tear)³	2.0 Lbs. (.91 kg)	8.7 Lbs. (4.0 kg)	19.2 Lbs. (8.7 kg)
Safety Impact Tests CPSC 16CFR ANSI Z97.1	Category I (150 ft. lbs.) Unlimited	Category II (400 ft. lbs.) Unlimited	Category II (400 ft. lbs.) Unlimited
Adhesive Strength After Weathering⁴	> 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)
Abrasion Resistance⁵ (100 cycles)	< 6% Change in Haze	< 6% Change in Haze	< 6% Change in Haze
Surface Burn Characteristics⁶	Class A Interior Use	Class A Interior Use	Class A Interior Use
Building Code Compliance	BOCA	BOCA	NA

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

¹ ASTM D-1004-94a

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

² 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.

³ ASTM D-2582-93

Puncture-Propagation Tear Resistance of Plastic Film and Sheeting

⁴ CPSC 1201.4

Accelerated Weathering for Plastics using 1200 hours Xenon Lamp Exposure

⁵ ASTM D-1044

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

⁶ ASTM E-84

Surface Burn Characteristics of Building Materials

Consumer Safety and Light Management

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