

Safety & Security Window Films

Optically clear films that protect glazing and people



Safety

More than three decades of experience lie behind the development and manufacture of Avery Dennison® multi-laminate Safety and Security Window Films. The portfolio offers a convenient solution to protecting people and property against flying glass shards from a wide variety of hazards and threats.

All films also provide excellent UV block, protecting people and property from damaging ultraviolet rays. The portfolio supports building codes and insurance policies that demand glazing meeting certain safety standards - such as impact-resistant glass in schools, and protection against break-ins or blast protection at retail locations.

Suitable for either interior or exterior application, the films offer outstanding transparency - using top-grade polyester and a unique proprietary transparent adhesive.

SF Clear i™ films feature exceptional clarity, low reflectance and high levels of UV rejection. They are available in thicknesses of 4, 7, 8 and 12 mil for appropriate protection levels. **SF Clear X™** films for exterior installation offer similar benefits, and are available in thicknesses of 4 and 7 mil.

Features and Benefits

- > Increased protection from shattered glass
- > Protection against impact, blast, crime or natural disaster
- > Solution for spontaneous breakage of tempered glass (e.g. balcony glass, using **SF Clear X** film)
- > Superb optical clarity, for no-compromise appearance
- > Up to 99% UV block, reducing fading and sun damage



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Optical and Solar Properties*	SF Clear™ 4 mil i EC	SF Clear i™ 4 mil	SF Clear i™ 7 mil	SF Clear i™ 8 mil	SF Clear i™ 12 mil	SF Clear X™ 4 mil	SF Clear X™ 7 mil
Pane	Single	Single	Single	Single	Single	Single	Single
Visible Light Transmitted	89%	89%	88%	88%	87%	88%	88%
Visible Light Reflected (Interior)	10%	10%	11%	11%	11%	10%	11%
Visible Light Reflected (Exterior)	10%	10%	11%	11%	11%	10%	11%
Ultra Violet Block	97%	97%	99%	99%	99%	99%	99%
Mechanical Properties							
Thickness (mil)	4	4	7	8	12	4	7
Tensile Strength at Break (PSI)	28,500	28,500	26,000	28,500	28,500	28,500	26,000
Break Strength (lb/inch)	112	112	180	224	336	112	180
Elongation at Break (%)	125	125	140	125	125	125	140
Peel Strength (lb/inch)	7	7	7	7	7	7	7
Safety Testing							
Fire							
DIN EN 13501-1: 2010 B-s1, d0		√	√	√	√	√	√
Impact							
ANSI Z97.1 18" pendulum fall		√					
ANSI Z97.1 48" pendulum fall			√	√			
CPSC 1201 Cat 1 18" pendulum fall		√					
CPSC 1201 Title 16 48" pendulum fall		√	√	√			
BS 6206 B		√					
EN 12600 2B2		√	√	√		√	
EN 12600 1B1			√	√			√
EN 356 P2A					√		
DIN 52290 Part 4, A1					√		
Shock Tube Test****							
GSA: 3A, ISO: C, ASTM: Minimal Hazard				√			

*Performance results are calculated on 3 mm glass using NFRC methodology and LBNL Window 5.2 software, and are subject to variations in process conditions within industry standards. Performance calculations should only be used for estimating purposes.

**Complies with Shock Tube Test Standards: GSA+TS01-2003, ISO 16934 & ASTM F 1642-12

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PRODUCT DATA SHEET

Avery Dennison® Interior Clear Safety Films

Issued: 07/2021

Introduction

Avery Dennison SF Clear window films feature exceptional clarity, low reflectance and high levels of UV protection. A full range of film thicknesses from 4-12 mil ensure the appropriate solution for different threats and hazards. **An EC (Economy) version is available for the 4 mil product featuring good clarity.**

Conversion

For conversion information please review the Technical Bulletin "Avery Dennison® Interior Safety Films Installation Guide".

Recommendations

Film can handle some blast effect on its own, but upgrading film with advanced security systems provides the best answer to blast protection:

- » Hospitals, Banks, Shopping Malls
- » Public Buildings
- » Residential Buildings

Features

- » Increased protection from glass shattered by impact, blast, crime or natural disaster
- » Substrate compatibility with glass or mirrors
- » Superb optical clarity for no compromise vision

¹⁾ Warranted Durability

The durability is based on middle European exposure conditions. Actual performance life will depend on substrate preparation, exposure conditions and maintenance of the marking. For instance, in the case of signs facing south; in areas of long high temperature exposure such as southern European countries; in industrially polluted areas or high altitudes, exterior performance will be decreased. With regard to Avery Dennison Architectural Window Film Products, the durability shall not differ between the climatic zones, but the same durability shall apply to all climatic zones.



Face Film

SF Clear 4 mil i EC, SF Clear 4 mil i, SF Clear 7 mil i, SF Clear 8 mil i, SF Clear 12 mil i translucent PET



Adhesive

Solvent based acrylic pressure sensitive



Backing

PET



Durability

12 years¹⁾



Shelf Life

2 years stored in original packaging at 20 °C (± 2 °C) with 50 %RH (± 5%).

Physical Characteristics

Mechanical Properties

	SF Clear 4 mil i EC	SF Clear 4 mil i	SF Clear 7 mil i	SF Clear 8 mil i	SF Clear 12 mil i
Thickness	4 mil	4 mil	7 mil	8 mil	12 mil
Tensile Strength at Break	28,500 PSI	28,500 PSI	26,000 PSI	28,500 PSI	28,500 PSI
Break Strength	112 lb/inch	112 lb/inch	180 lb/inch	224 lb/inch	336 lb/inch
Elongation at Break	125%	125%	140%	125%	125%
Peel Strength	7 lb/inch	7 lb/inch	7 lb/inch	7 lb/inch	7 lb/inch

Optical & Solar Properties:

	SF Clear 4 mil i EC	SF Clear 4 mil i	SF Clear 7 mil i	SF Clear 8 mil i	SF Clear 12 mil i
Visible Light Transmitted %	89	89	88	88	87
Visible Light Reflected (Int) %	10	10	11	11	11
Visible Light Reflected (Ext) %	10	10	11	11	11
U V Block %	97	97	99	99	99
Total Solar Energy Reflected %	9	9	9	9	10
Total Solar Energy Transmitted %	81	81	80	80	78
Total Solar Energy Absorbed %	10	10	11	11	12
Shading Coefficient	0,96	0,96	0,95	0,95	0,94
Total Solar Energy Rejected %	16	16	17	17	18
Solar Heat Gain Coefficient	0,84	0,84	0,83	0,83	0,82
U-Value Winter	1,07	1,07	1,07	1,07	1,07
K-Value Winter	6,07	6,07	6,07	6,07	6,07
Glare Reduction %	1	1	2	2	3

Certification:

		SF Clear 4 mil i EC	SF Clear 4 mil i	SF Clear 7 mil i	SF Clear 8 mil i	SF Clear 12 mil i
Fire Certification	DIN EN 13501-1	-	B-s1, d0	B-s1, d0	B-s1, d0	B-s1, d0
Impact on filmed Glass side	EN 12600	-	2B2	2B2	1B1	
Impact	BS6206	-	class B			
Impact	DIN EN 356	-				P2A
Bomb Blast	GSA Level C	-			3B	

Important

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PRODUCT DATA SHEET

Avery Dennison® Exterior Clear Safety Films

Issued: 10/2021

Introduction

Avery Dennison® SF Clear X window films feature exceptional clarity, low reflectance and high levels of UV protection.

Conversion

For conversion information please review the Technical Bulletin “Avery Dennison® Safety Window Films”.

Recommendations

These exterior safety films provide an additional level of protection from the external side of the window, ensuring that glass shards do not injure passing pedestrians. The transparent films offer excellent clarity, low reflectance and high UV protection, and are available in two different thicknesses.

Features

- » Substrate compatibility with glass or mirrors
- » Superb optical clarity for no compromise vision
- » Forced entry, break-in protection



Face Film

SF Clear 4 mil X; SF Clear 7 mil X translucent PET with exterior durable SR hard coat advanced PS adhesive system



Adhesive

Pressure sensitive Permanent – Solvent based acrylic



Backing

PET



Durability

5 years (vertical) and 3 years (horizontal/sloped)¹⁾



Shelf Life

When stored in original packaging upon arrival at the customer: 2 years. Recommended Storage conditions are 20 °C (± 2 °C) with 50 %RH (± 5%).

Certification:

	Norm	SF Clear 4 mil X	SF Clear 7 mil X
Fire Certification	DIN EN 13501-1	B-s1, d0	B-s1, d0
Impact	EN 12600	2B2	1B1

¹⁾ Warranted Durability

The durability is based on middle European exposure conditions. Actual performance life will depend on substrate preparation, exposure conditions and maintenance of the marking. For instance, in the case of signs facing south; in areas of long high temperature exposure such as southern European countries; in industrially polluted areas or high altitudes, exterior performance will be decreased. With regard to Avery Dennison Architectural Window Film Products, the durability shall not differ between the climatic zones, but the same durability shall apply to all climatic zones

Physical Characteristics

Mechanical Properties:

	SF Clear 4 mil X	SF Clear 7 mil X
Thickness	4 mil	7 mil
Tensile Strength at Break	28,500 PSI	26,000 PSI
Break Strength	112 lb/inch	180 lb/inch
Elongation at Break	125%	140%
Peel Strength	7 lb/inch	7 lb/inch

Optical & Solar Properties:

	SF Clear 4 mil X	SF Clear 7 mil X
	Single Pane	Single Pane
Visible Light Transmitted %	88	88
Visible Light Reflected (Int) %	10	11
Visible Light Reflected (Ext) %	10	11
U V Block %	99	99
Total Solar Energy Reflected %	10	9
Total Solar Energy Transmitted %	80	80
Total Solar Energy Absorbed %	10	11
Shading Coefficient	0,96	0,95
Total Solar Energy Rejected %	17	17
Solar Heat Gain Coefficient	0,83	0,83
U-Value Winter	1,04	1,04
K-Value Winter	5,91	5,91
Glare Reduction %	2	2

Important

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