

3M™ Safety & Security Window Film

Safety S20 Exterior

Technical Data

Product Features & Benefits

- x Dual purpose Exterior / Interior film
- x Outstanding exterior weatherability
- x Optically clear, 2 mil (50 μm) thick film
- x Suitable for basic glass fragment retention upon spontaneous breakage of tempered glass
- x Provides shatter resistance to help protect against broken glass hazards caused by seismic activity, and other low force impact events
- x Suggested uses: to help secure exterior facing glass such as balcony glass, balustrades, skylights, outer pane of multiple glazed units, curtain walls
- x Use with 3M Impact Protection Attachment Systems to enhance glass retention

Product Performance & Technical Data

Safety S20 Exterior								
	Single Pane		Tinted		Double Pane		Double tinted	
Film	1/4" Clear	Safety S20 Exterior	1/4" tint	Safety S20 Exterior	Dual 1/4" clear	Safety S20 Exterior	Dual 1/4" tint	Safety S20 Exterior
Solar Heat Gain Coefficient	0.81	0.80	0.63	0.62	0.70	0.69	0.51	0.50
Visible Light Transmitted	89%	88%	53%	53%	79%	79%	47%	47%
Visible Light Reflected Interior	9%	9%	6%	6%	15%	15%	13%	8%
Visible Light Reflected Exterior	8%	9%	6%	6%	15%	15%	9%	13%
U Value	1.03	1.02	1.03	1.02	0.47	0.47	0.47	0.47
UV Block	38%	99.9%	NA	99.9%	NA	99.9%	NA	99.9%
Total Solar Energy Rejected	19%	20%	37%	38%	30%	31%	49%	50%
Glare Reduction	NA	0%	NA	0%	NA	0%	NA	0%
Heat Loss Reduction	NA	1%	NA	0%	NA	0%	NA	0%
Solar Heat Reduction	NA	2%	NA	1%	NA	2%	NA	2%

Film Properties* (nominal)

Product	Film Thickness	Single or Multi-ply	Tensile Strength	Break Strength	Elongation at Break	Peel Strength	Abrasion Resistance
Safety S20 Exterior	2 mil (50 micron)	Single	25,000 psi	50 lbs/in	100 %	4 lbs/in	~ 5% haze increase

Important:

This product is not approved in the State of Florida for use as hurricane, windstorm, or impact protection from wind-borne debris from a hurricane or windstorm. In compliance with Florida Statute 553.842, this product may not be advertised, sold, offered, provided, distributed, or marketed in the State of Florida as hurricane, windstorm, or impact protection from wind-borne debris from a hurricane or windstorm.

The information provided in this report is believed to be reliable; however, due to the wide variety of intervening factors, 3M does not warrant that the results will necessarily be obtained. All details concerning product specifications and terms of sale are available from 3M.



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Specifications - Safety and Security Window Film

Specifications for 3M Safety S20 Exterior

1.0 Scope

This specification is for an optically clear glass shatter resistant window film that will help hold broken glass together. The film exhibits excellent longevity and durability when applied on the exterior surface of a window, but may also be used as an interior film. The film blocks over 99% of the ultra-violet that would normally radiate through a window. The film is useful for glass shatter protection and general glass fragment retention against low force impact situations, such as spontaneous glass breakage and seismic events. Certain applications may require the film be used in conjunction with a film attachment system. The film shall be called **3M Safety and Security Window Film, Safety S20 Exterior**.

2.0 Applicable Documents

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

The 1985 American Society for Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Handbook of Fundamentals.

The American National Standards Institute (ANSI).

ANSI Z97.1 Specification for Safety Glazing Material used in Buildings

The American Society for Testing and Materials (ASTM):

- x ASTM E-308 Standard Recommended Practice for Spectrophotometry and Description of Color in CIE 1931 System
- x ASTM E-903 Standard Methods of Test for Solar Absorbance, Reflectance and Transmittance of Materials Using Integrating Spheres
- x ASTM D-882 Standard Test Method for Tensile Properties of Thin Plastic Sheeting
- x ASTM D-1044 Standard Method of Test for Resistance of Transparent Plastics to Surface Abrasion (Taber Abrader Test)
- x ASTM D-4830 Standard Test Methods for Characterizing Thermoplastic Fabrics Used in Roofing and Waterproofing.
- x ASTM G-90 Standard Practice for Performing Accelerated Outdoor Weatherizing for Non-metallic Materials Using Concentrated Natural Sunlight
- x ASTM G 26 Standard Practice for Performing Accelerated Outdoor Weatherizing for Non-metallic Materials Using Concentrated Natural Sunlight
- x ASTM E-84 Standard Method of Test for Surface Burning Characteristics of Building Materials

The Consumer Products Safety Commission (CPSC) 16 CFR, Part 1201, Safety Standard for Architectural Glazing Material

European Norm, EN-12600

Japan Industrial Standard, JIS A5759

Window. A Computer Tool for Analyzing Window Thermal Performance, Lawrence Berkeley Laboratory

3.0 Requirements of the Film

3.1 Film Material: The film material shall consist of an optically clear polyester film with a durable abrasion resistant coating over one surface, and a pressure sensitive adhesive on the other. The film shall have a nominal thickness of 2 mils (0.002 inches). The film shall be identified as to Manufacturer of Origin (hereafter to be called Manufacturer).

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