Safety & Security Film Performance Specifications

Product Name	% Total Solar Energy			% Visible Light				Solar Heat Gain Coefficient	Shading Coefficient	Luminous Efficacy	Total Solar Energy Rejection	Infrared Rejection	U Factor	Emissivity	UV Rejection
	Trans.	Reflected (Ext)	Absorb	Trans.	Reflected (Ext)	Reflected (Int)	Glare Reduction								
Solar Performance															
Clear 4 Mil	82%	8%	9%	89%	9%	9%	1%	0.85	0.98	0.91	15%	20%	1.04	0.87	99%
Clear 7 Mil	81%	8%	11%	89%	9%	9%	1%	0.85	0.97	0.91	15%	24%	1.07	0.91	99%
Clear 8 Mil	79%	8%	13%	87%	10%	9%	3%	0.83	0.95	0.92	17%	28%	1.07	0.90	99%
Clear 14 Mil	75%	8%	18%	87%	9%	9%	4%	0.80	0.92	0.94	20%	28%	1.02	0.87	99%
Graffiti-Free® 4 Mil	84%	9%	7%	90%	9%	9%	0%	0.85	0.99	0.91	15%	18 %	1.10	0.95	99%
Graffiti-Free® 6 Mil	81%	9%	10%	87%	10%	10%	3%	0.84	0.96	0.91	16%	23%	1.04	0.87	99%
Silver 40 4 Mil	34%	28%	38%	44%	28%	26%	51%	0.45	0.51	0.87	55%	79%	0.95	0.68	99%
Silver 20 4 Mil	13%	53%	34%	18%	57%	57%	80%	0.22	0.25	0.71	78%	94%	0.91	0.60	99%
Silver 40 8 Mil	34%	28%	38%	44%	28%	27%	51%	0.45	0.51	0.86	55%	80%	0.96	0.70	99%
Silver 20 8 Mil	13%	52%	35%	17%	57%	58%	81%	0.22	0.25	0.70	78%	94%	0.90	0.58	99%
Neutral Grey 45 8 Mil	37%	16%	47%	44%	14%	17%	51%	0.50	0.58	0.76	50%	73%	0.97	0.71	99%
Neutral Grey 35 8 Mil	30%	18%	52%	36%	15%	22%	60%	0.45	0.52	0.69	55%	79%	0.98	0.73	99%
Exterior Clear 7 Mil	80%	7%	13%	89%	8%	8%	1%	0.84	0.97	0.91	16%	26%	1.04	0.87	99%

Product Name	Film Thickness	Structural Component	Structure	Adhesive Type	Tensile Strength	Break Strength	Peel Strength
Physical Properties							
Clear 4 Mil	0.0045”	0.004”	Single Ply	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	100 Pounds Per Inch (Width)	5 to 6 pounds Per Inch
Clear 7 Mil	0.008”	0.007”	Single Ply	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	175 Pounds Per Inch (Width)	5 to 6 pounds Per Inch
Clear 8 Mil	0.0095”	0.008”	Multi-Ply Laminate	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	200 Pounds Per Inch (Width)	5 to 6 pounds Per Inch
Clear 14 Mil	0.014”	0.0135”	Multi-Ply Laminate	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	325 Pounds Per Inch (Width)	5 to 6 pounds Per Inch
Graffiti-Free 4 Mil	0.004”	0.004”	Single Ply	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	100 Pounds Per Inch (Width)	3 to 4 pounds Per Inch
Graffiti-Free 6 Mil	0.007”	0.006”	Multi-Ply Laminate	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	150 Pounds Per Inch (Width)	3 to 4 pounds Per Inch
Silver 40 4 Mil	0.005”	0.0045”	Multi-Ply Laminate	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	100 Pounds Per Inch (Width)	5 to 6 pounds Per Inch
Silver 20 4 Mil	0.005”	0.0045”	Multi-Ply Laminate	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	100 Pounds Per Inch (Width)	5 to 6 pounds Per Inch
Silver 40 8 Mil	0.010”	0.0085”	Multi-Ply Laminate	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	200 Pounds Per Inch (Width)	5 to 6 pounds Per Inch
Silver 20 8 Mil	0.010”	0.0085”	Multi-Ply Laminate	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	200 Pounds Per Inch (Width)	5 to 6 pounds Per Inch
Neutral Grey 45 8 Mil	0.010”	0.0085”	Multi-Ply Laminate	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	200 Pounds Per Inch (Width)	5 to 6 pounds Per Inch
Neutral Grey 35 8 Mil	0.010”	0.0085”	Multi-Ply Laminate	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	200 Pounds Per Inch (Width)	5 to 6 pounds Per Inch
Exterior Clear 7 Mil	0.008”	0.007”	Single Ply	Acrylic Pressure Sensitive	25,000 PSI Avg. MD/TD	175 Pounds Per Inch (Width)	5 to 6 pounds Per Inch

Read in accordance with National Fenestration Rating Council (NFRC) standards on 3mm (1/8”) clear glass.

* IR Rejection is tested in the IR range of 780 to 2500 nanometers.

Reported values are typical properties and should not be used as a specification. Since only the user is aware of the specific conditions in which the product is to be used, it is the user’s responsibility to determine whether the product is suitable for that intended use. If the specific conditions of use are critically dependent on any of the properties of the product, or if you need further information, contact Madico or your local Madico Window Film dealer.

Solar Optical & Physical Properties Glossary

Total Solar Energy: all the energy in the solar spectrum that reaches us on the earth's surface. This includes UVA and UVB, Visible light, and Infrared energy up to roughly 2500nm.

Transmitted: the amount of total solar energy that passes through the glass, into the building.

Reflected: the amount of total solar energy that is reflected off of the glass and directed back outside. This energy does not come into the building.

Absorbed: the amount of total solar energy that is absorbed into the glass. This heats up the glass, making it hotter to the touch, and re-radiates a small amount of heat back into the room. The majority of absorbed energy is kept out of the room though.

Visible Light: the portion of the solar spectrum containing visible light we can see, from roughly 380nm up to 780nm, contains all the colors of the spectrum.

Transmitted: the amount of visible light that passes through the glass, into the building. This is how light or dark the film is.

Reflected Exterior: the amount of visible light that is reflected off the exterior surface of the window. This is seen when standing outside the building. A higher reflectance value means the window looks more like a mirror from the outside.

Reflected Interior: the amount of visible light that is reflected off the interior surface of the window. This is seen when standing inside the building looking out. A higher reflectance value means the window looks more like a mirror from the inside.

Glare Reduction: the reduction in visible light transmitted compared to clear unfilmed glass.

Solar Heat Gain Coefficient: similar to the shading coefficient, except this value also takes into account energy that is re-radiated back into the room from the glass heating up due to increased absorption. Again, a lower number means better heat rejection.

Shading Coefficient: the ratio of heat passing through a filmed window to heat passing through clear unfilmed glass. A lower number means better heat rejection.

Luminous Efficacy: the ratio of visible light transmission to solar heat transmission for a window. A higher luminous efficacy means the film has high heat rejection given its VLT.

Total Solar Energy Rejection: the total amount of solar energy that is kept out of the building. Although not accurate, this is commonly referred to as heat rejection.

Infrared Rejection: the amount of infrared (IR) energy that is blocked by the film, either by reflecting or absorbing. This value is for the whole IR region of the solar spectrum, roughly 780nm up to 2500nm.

U Factor: heat transfer due to temperature differences outside and inside. Represents the amount of heat passing through 1 sq ft of glass in 1 hour for every 1 degree temperature difference between the outside and inside. A lower value means less heat passes through, and this is generally of interest for keeping heat inside the building in cold climates.

Emissivity: the ability of the surface to reflect infrared energy. For window film, this means how much heat it will re-radiate back into a room. Low E glass and films have low emissivities, which means they reflect a lot of heat back into the room, which is the desired effect in cold climates.

Ultraviolet Light Rejection: the amount of UV energy blocked by the film, either by reflecting or absorbing it. This energy does not enter the building.

Tensile Strength: the value of a 1" x 1" square of film being pulled apart in the same manner as the film break strength test. It is generally calculated up from the break strength and reported in pounds per square inch, (PSI).

Break Strength: the actual load or force at which fracture occurs measured in pounds per inch (width). Break strength is a function of tensile strength.

Peel Strength: the force necessary to remove a coated material adhered to a prescribed surface from that surface measured in pounds per inch.