

SAFETY & SECURITY FILM SPECIFICATIONS

PROFESSIONAL ANTI-FRAGMENTATION FILMS DESIGNED FOR GLASS HAZARD MITIGATION

FILM TYPE	FILM THICKNESS	STRUCTURE	VISIBLE LIGHT TRANSMISSION	UV LIGHT REDUCTION	SOLAR ENERGY REJECTION	SOLAR HEAT GAIN COEFFICIENT	SHADING COEFFICIENT	EXTERIOR REFLECTIVITY	INTERIOR REFLECTIVITY	GLARE REDUCTION	U-FACTOR NFRC
GLASS	—	—	82%	38%	18%	0.82	0.94	8%	8%	0%	1.03
SEC02	0.002	1 Ply	88%	98%	18%	0.82	0.94	9%	9%	0%	1.05
SEC04	0.004	1 Ply	88%	98%	18%	0.82	0.94	9%	9%	0%	1.05
SEC06	0.006	2 Ply	88%	98%	19%	0.81	0.93	9%	9%	0%	1.05
SEC08	0.008	2 Ply	87%	99%	20%	0.80	0.92	10%	10%	1%	1.05
SEC11	0.011	2 Ply	86%	99%	20%	0.80	0.92	10%	10%	2%	1.05
SEC12	0.012	3 Ply	86%	99%	21%	0.79	0.91	11%	11%	2%	1.05
SEC15	0.015	3 Ply	87%	99%	19%	0.81	0.93	10%	10%	2%	1.04
SEC16	0.016	4 Ply	87%	99%	20%	0.81	0.93	10%	10%	2%	1.04
S4DN20	0.005	2 Ply	22%	99%	62%	0.38	0.44	26%	26%	75%	1.03
S4DN35	0.005	2 Ply	37%	99%	50%	0.50	0.58	17%	15%	56%	1.04
S4SS20	0.005	2 Ply	22%	99%	72%	0.28	0.32	50%	51%	75%	0.96
S4SS35	0.005	2 Ply	37%	99%	60%	0.40	0.47	33%	33%	56%	0.97
S8DN20	0.009	3 Ply	20%	99%	66%	0.34	0.39	30%	30%	77%	1.01
S8DN35	0.009	3 Ply	37%	99%	52%	0.48	0.55	19%	16%	56%	1.02
S8SS20	0.009	3 Ply	16%	99%	77%	0.23	0.26	59%	59%	82%	0.95

PHYSICAL PROPERTIES

PSI = Pounds per square inch

PLI = Pounds per lineal inch (width)

MD = Machine Direction

TD = Transverse direction

ASTM D 882 TENSILE STRENGTH

FILM TYPE	TENSILE STRENGTH		BREAK STRENGTH		ELONGATION AT BREAK		D 3330 PEEL STRENGTH
	MD	TD	MD	TD	MD	TD	
	PSI	PSI	PLI	PLI	%	%	
SEC02	19,000	24,700	40	52	97%	46%	>5 lbs/in
SEC04	17,500	23,500	74	99	84%	94%	>5 lbs/in
SEC06	19,250	25,300	126	160	75%	35%	>5 lbs/in
SEC08	18,600	25,400	157	214	125%	101%	>5 lbs/in
SEC11	16,300	23,500	190	273	152%	142%	>5 lbs/in
SEC12	17,800	23,700	225	300	131%	74%	>5 lbs/in
SEC15	18,000	23,400	285	370	167%	124%	>5 lbs/in
SEC16	16,600	21,500	320	394	154%	103%	>5 lbs/in
S4DN20	22,900	32,600	96	137	102%	99%	>5 lbs/in
S4DN35	22,900	32,600	96	137	102%	99%	>5 lbs/in
S4SS20	22,900	32,600	96	137	102%	99%	>5 lbs/in
S4SS35	22,900	32,600	96	137	102%	99%	>5 lbs/in
S8DN20	22,050	30,000	186	253	90%	36%	>5 lbs/in
S8DN35	22,050	30,000	186	253	90%	36%	>5 lbs/in
S8SS20	22,050	30,000	186	253	90%	36%	>5 lbs/in

BASE FILM DATA Tensile Strength

	MD	TD
	PSI	PSI
2 MIL	27,500	31,000
3 MIL	27,000	30,000
4 MIL	27,000	29,000
7 MIL	22,000	26,000

Break Strength

	MD	TD
	PLI	PLI
2 MIL	55	62
3 MIL	81	90
4 MIL	108	116
7 MIL	154	182

Reported values are typical properties and should not be used as a specification. Only the user is aware of the conditions in which the product will be used, it is the users responsibility to determine if the product is suitable for use. If the specific conditions of use are critically dependent on any properties or if you need further information contact your Johnson Window Films dealer.

TENSILE STRENGTH (PSI)

The tensile strength of a material is the maximum amount of stress that it can take before failure, such as breaking or permanent deformation. It is calculated by dividing the maximum load by the original minimum cross sectional area of the specimen. Calculated up from break strength.

BREAK STRENGTH (LBS/IN WIDTH)

Breaking strength is that force which is required to break the specimen. The appropriate reporting unit for this test is pounds per lineal inch. Used to determine tensile strength.

ELONGATION AT BREAK

Presented as a percentage in relation to the initial length before elongation. It is calculated by dividing the extension at the moment of rupture in the specimen multiplied by 100. It represents the amount of stretch exhibited by the sample prior to the failure point.

TERMS & DEFINITIONS

VISIBLE LIGHT TRANSMISSION

Visible Light Transmission is the percentage of solar visible light (daylight) that passes through a glazing system.

UV LIGHT REDUCTION

UV Light Reduction is the percentage of Ultraviolet Rays that is rejected away from a glazing system.

SOLAR ENERGY REJECTED

Solar Energy Rejected is the percentage of total solar energy (heat) that is rejected away from a glazing system. This equals solar heat reflectance plus the amount of solar heat absorbed that is then re-radiated outwards.

SOLAR HEAT GAIN COEFFICIENT

Solar Heat Gain Coefficient is the percentage of total solar heat that enters a glazing system. This includes heat directly transmitted as well as heat that is absorbed by the glass and then transmitted inwards (lower SHGC means less heat transfer from the exterior to the interior).

SHADING COEFFICIENT

Shading Coefficient is the ratio of solar heat gain passing through a glazing system to the solar heat gain that occurs under the same conditions if the window were made of clear, un-shaded double strength window glass (lower SC equals better solar shading performance).

EXTERIOR REFLECTANCE

Exterior Reflectance is the percentage of reflectivity (mirror effect) that occurs on the outside of a glazing system. The higher the value, the more reflective the exterior, providing a more mirror-like appearance.

INTERIOR REFLECTANCE

Interior Reflectance is the percentage of reflectivity (mirror effect) that occurs on the inside of a glazing system. The higher the value, the more reflective the interior, providing a more mirror-like appearance.

GLARE REDUCTION

The ratio of the difference in visible transmission of the glass before and after installing film to the visible transmission of the glass with no film. It is expressed as a percentage and is determined by the respective visible transmission values of the glass with and without film.

U-FACTOR NFRC

U-Factor (or U-Value) is a measurement of solar heat transfer due to outdoor/indoor temperature differences. This represents the amount of heat passing through one square foot of glass in one hour for each 1 degree Fahrenheit temperature difference between the indoor and outdoor. The lower the U-Factor the less solar heat passes through a window of interest for keeping heat inside a building in colder climates.



Johnson Window Films

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