

Solar Control, Safety and Security Window Films

Solar Gard® Armorcoat® at a Glance

Page 1 of 3

The Department of Energy gets efficient with Solar Gard® Armorcoat® safety and security film

Tough, resilient Solar Gard Armorcoat safety and security window films are composed of incredibly strong, optical quality polyester, high-grade ultraviolet inhibitors and special laminating and mounting adhesives, with a protective, scratch-resistant coating.

Pressure-sensitive mounting adhesive helps hold glass in place when natural disasters, vandalism, explosions, bomb blasts and other incidents result in glass breakage.

Solar versions of Solar Gard Armorcoat safety films reject up to 80% of the sun's total solar energy to improve occupant comfort, reduce energy consumption, and improve exterior aesthetics, while still affording increased protection.

Both clear safety and solar safety versions block 99% of the sun's destructive ultraviolet rays from entering through windows to provide protection from premature fading and deterioration of furnishings. Solar Gard Armorcoat safety window films are manufactured in thickness between 2 Mil (50 micron) and 14 Mil (350 micron).

All Solar Gard Armorcoat safety window films are backed by a strong manufacturer's warranty and are easy to clean and maintain.

More than 80,000 square feet of Solar Gard Armorcoat has been installed on government buildings, such as the U.S. Capitol, the Pentagon, the FBI Headquarters and the U.S. Department of Energy (DOE,) reducing energy loss and maintaining comfortable air temperatures for the employees within.

Solar Gard Armorcoat offers you:

- Reduced glare from direct sunlight.
- Reduced energy loss.
- Increased occupant comfort.
- Increased protection from flying glass shards in the event of explosion, severe weather or accidental breakage.

Testing at a Glance

Solar Gard® Armorcoat® safety window films pass some of the most stringent testing in the industry

Solar Gard Armorcoat safety window films have passed some of the toughest government and consumer testing to provide effective burglary protection, blast mitigation and overall window safety, making it one of the best investments for commercial buildings, offices, storefronts, and government facilities. The resilient layers of high-tensile polyester, aggressive adhesives, ultraviolet inhibitors and scratch-resistant coatings provide exceptional impact resistant capabilities – with thicker films offering greater protection.

Notes: This test data contains results arrived at only after employing specific test procedures and standards. The included data does not constitute a recommendation for, endorsement of, or certification of the product or material tested. This data is provided for informational purposes only and are not to be considered part of the basis of any bargain or transaction involving Saint-Gobain Solar Gard LLC (SGSG) products. SGSG makes no representation or warranty, expressed or implied, including the implied warranties of

merchantability or fitness for a particular purpose, that its products will conform to these test data. Extrapolation of data from the sample or sample relating to the batch or lot from which data were obtained may not correlate and should be interpreted accordingly with caution. SGSG shall not be responsible for variations in quality, composition, appearance, performance, or other feature of similar subject matter produced by persons or under conditions over which SGSG has no control.

Physical and thermal properties of Solar Gard® Armorcoat® safety and security films

	FILM THICKNESS							
	4-Mil	7-Mil	8-Mil	10-Mil	11-Mil	14-Mil		
TEST NAME	100 μ	175 µ	200 μ	250 μ	275 µ	350 µ		
Tensile Strength (psi)	30,000	30,000	30,000	30,000	30,000	30,000		
ASTM D-882 (kg/cm²)	2,110	2,110	2,110	2,110	2,110	2,110		
Elongation (%)ASTM D-882	150	150	150	150	150	150		
Yield Stress (5%) - (psi) ASTM D-882	15,000	15,000	15,000	15,000	15,000	15,000		
(kg/cm²)	1,055	1,055	1,055	1,055	1,055	1,055		
Break Strength (lbs in)	120	210	240	300	330	420		
Break Strength (kg/cm)	22	38	43	54	59	75		
Tear Strength (lbs force)	6.6	11.6	13.2	16.5	18.2	23.1		
Graves Tear Test, Initial (kg force) ASTM D-1004	3.0	5.3	6.0	7.5	8.3	10.5		
Tensile Modulus (psi) ASTM D-882	500,000	500,000	500,000	500,000	500,000	500,000		
(kg/cm²)	35,160	35,160	35,160	35,160	35,160	35,160		
Puncture Strength (lbs force) ASTM D-4830	66	115	140	175	198	230		
(kg force)	30	52	64	80	84	105		
Peel Strength (gms/in)	>2,500	>2,500	>2,500	>2,500	>2,500	>2,500		
Peel Strength (gms/cm)	>984	>984	>984	>984	>984	>984		
Poisson's Ratio	0.38	0.38	0.38	0.38	0.38	0.38		
Abrasion Resistance (%) ASTM D-1003, D-1044, 100 Cycles, 500 gms, CS-1 wheel	<5	<5	<5	<5	<5	<5		

Testing at a Glance

Solar Gard® Armorcoat® safety and security films test results

	FILM THICKNESS							
	4-Mil	7-Mil	8-Mil	10-Mil	11-Mil	14-Mil		
TEST NAME	100 μ	175 µ	200 μ	250 μ	275 µ	350 µ		
ANSI Z 97.1	Class B & C	Class B,C	Class A,B,C	Class A,B,C	Class A,B,C	Class A,B,C		
CPSC, CFR 1201	Cat I	Cat. I	Cat. I, II	Cat. I, II	Cat. I, II	Cat. I, II		
EN 12600 (6mm)	2-B-2	1-B-1	1-B-1	1-B-1	1-B-1	1-B-1		
Blast Mitigation								
GSA Performane Condition-Daylight (SP-A, 4-psi)	3b	3b	3b	3b	NT	3b		
GSA Performane Condition-Wet Glaze (SP-A, 4-psi)	NT	3b	3a	NT	NT	NT		
GSA Performane Condition-Mechanical (SP-A, 4-psi)	NT	3b	3b	3b	NT	NT		
GSA Performane Condition-Mechanical (SP-A, 10-psi)	NT	NT	NT	NT	NT	3a		
GSA Performane Condition-Wet Glaze (SP-T, 4-psi)	NT	NT	2	NT	NT	NT		
GSA Performane Condition-Wet Glaze (DP-A, 4-psi)	NT	NT	2	NT	NT	NT		
GSA Performane Condition-Daylight (DP-A, 4-psi)	NT	3a	NT	NT	NT	NT		
GSA Performane Condition-EdgPro (SP-A, 4-psi)	NT	NT	3b	NT	NT	NT		
GSA Performane Condition-EdgPro (SP-T, 4-psi)	NT	NT	3b	NT	NT	NT		
GSA Performane Condition-Mechanical 2-sided (SP-T, 4-psi)	NT	NT	3b	NT	NT	NT		
ISO Hazard Rating-Wet Glaze (DP-A, 7.25-psi (50-kPa))	NT	NT	EXV33-C	NT	NT	NT		
ISO Hazard Rating-Wet Glaze (DP-T, 7.25-psi (50-kPa))	NT	NT	EXV33-B	NT	NT	NT		
ISO Hazard Rating-EdgPro (DP-T, 7.25-psi (50-kPa))	NT	NT	EXV33-D	NT	NT	NT		
ISO Hazard Rating-EdgPro (DP-T, 7.25-psi (50-kPa))	NT	NT	EXV33-C	NT	NT	NT		
ISO Hazard Rating-EdgPro (SP-T, 7.25-psi (50-kPa))	NT	NT	EXV33-D	NT	NT	NT		
ISO Hazard Rating-Wet Glaze (SP-T, 7.25-psi (50-kPa))	NT	NT	EXV33-C	NT	NT	NT		
ASTM Hazard Level-Wet Glaze (DP-A, 4-psi)	NT	NT	No Hazard	NT	NT	NT		
ASTM Hazard Level-Wet Glaze (DP-T, 7.25psi)	NT	NT	No Hazard	NT	NT	NT		
UFC Level of Protection-Wet Glaze (DP-A, 4-psi)	NT	NT	High Level	NT	NT	NT		
UFC Level of Protection-Wet Glaze (DP-T, 7.25psi)	NT	NT	High Level	NT	NT	NT		
Burglary Resistance DIN EN 356	NT	NT	P1A	NT	P1A	P2A		
NFPA Fire Rating Interior Building Materials ASTM E-84 (Flame and Smoke)	Class A ¹							
Ignition Properties ASTM D-1929								
Flash Ignition (°F)	702	702	702	702	702	702		
Flash Ignition (°C)	372	372	372	372	372	372		
Self Ignition (°F)	834	834	834	834	834	834		
Self Ignition (°C)	445	445	445	445	445	445		

¹ = per NFPA 101

SP = Single Pane

DP = Double Pane

T = Tempered

A = Annealed





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SK0162AC 06/16
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