



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.

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

TEST NAME	FILM THICKNESS					
	4-Mil	7-Mil	8-Mil	10-Mil	11-Mil	14-Mil
	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/cm ²)	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/cm ²)	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/cm ²)	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

Solar Gard® Armorcoat® safety and security films test results

TEST NAME	FILM THICKNESS					
	4-Mil	7-Mil	8-Mil	10-Mil	11-Mil	14-Mil
	100 µ	175 µ	200 µ	250 µ	275 µ	350 µ
ANSI Z 97.1	Class B & C	Class A,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, II	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)	NT	NT	2	NT	NT	NT
GSA Performane Condition-Wet Glaze (DP-A)	NT	NT	2	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
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	NT	NT	NT	P2A
NFPA Fire Rating Interior Building Materials ASTM E-84 (Flame and Smoke)	Class A ¹	Class A ¹	Class A ¹	Class A ¹	Class A ¹	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
Melt Point (°F)	480	480	480	480	480	480
Melt Point (°C)	249	249	249	249	249	249

¹ = per NFPA 101

SP = Single Pane

DP = Double Pane

T = Tempered

A = Annealed



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