

A better environment inside and out.®



Solar, Safety and Security Window Films Armorcoat® at a Glance



Installation Summary:

Location:

U.S. Department of Energy (DOE) in Washington, D.C.

Solution:

Armorcoat 8 Mil Silver 35

Amount of film:

Over 80,000 square feet (7,428 square meters)

Benefits:

Reduce energy loss

Reduce heat

Reduce glare

Increase protection from flying glass shards in the event of an explosion, extreme weather or other glass breakage incident.

Tough, resilient 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 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. Armorcoat

safety window films are manufactured in thickness between 2 Mil (50 micron) and 14 Mil (350 micron).

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

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).



www.solargard.com

Saint-Gobain Performance Plastics
4540 Viewridge Avenue, San Diego, CA 92123
877.273.4364

Testing at a Glance

Armorcoat films have been tested and proven by independent researchers and consumer safety groups worldwide, passing some of the most stringent human, storm simulation, and bomb blast standards.

Architectural Safety Glazing

CFR Title 16, CPSC Part 1201, Category I and II (USA)
ANSI Z 97.1 Class A, B and C – Unlimited (USA)
EN 12600, Class 1-B-1 and 2-B-2 (EU)
AS/NZ 2208 (Australia – New Zealand)

Ballistics Resistance

HP White Laboratories, HP-TP-0500.02

Wind and Water Resistance

Air infiltration – ASTM E-283
Water resistance- ASTM-331
Uniform load (Structural and Deflection) ASTM E-330

Wind Borne Debris (Small and Large Missile)*

ASTM E-1886, Large Missile (4.5 lb. missile)
ASTM E-1996, Large Missile (4.5 lb. missile)
Miami-Dade Protocol – PA 201 and 203, Small Missile

Fire resistance

ASTM E-84
ASTM D-1929

Blast resistance

GSA Standard Test for Glazing and Glazing Systems Subject to Airblast Loading

Puncture resistance

ASTM D-4830

* Although test reports show that material meets requirements of the listed tests, this in no way indicates that material is accepted by any coding body as an approved product.

Physical and thermal properties of 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)	6.1	11.1	12.7	27	19.25	24
Graves Tear Test, Initial (kg force) ASTM D-1004	2.8	5.0	5.8	12.3	8.8	10.9
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
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	2-B-2	2-B-2	1-B-1	1-B-1	1-B-1	1-B-1
GSA Airblast Test						
Performance Condition - Daylight ^D	3-B ^{D1}	3-B ^{D1}	3-B ^{D1}	3-B ^{D1}	NT	3-B ^{D1}
Performance Condition - Wet Glaze ^W	N/A	N/A	3-A ^{W1}	N/A	NT	N/A
Performance Condition - Mechanical ^M	N/A	3-B ^{M1}	3-B ^{M1}	3-B ^{M1}	NT	3-A ^{M2}
NFPA Fire Rating Interior Building Materials ASTM E-84 (Flame and Smoke)	Class A ³	Class A ³	Class A ³	Class A ³	Class A ³	Class A ³
Ignition Properties ASTM D-1929						
Flash Ignition (°F)	704	704	704	704	704	704
Flash Ignition (°C)	373	373	373	373	373	373
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 = 4-psi, 28-psi, ms ² = 10-psi, 56-psi,ms ³ = per NFPA 101