Trident
SAFETY & SECURITY FILMS

SAFETY & SECURITY FILM SPECIFICATIONS

PROFESSIONAL ANTI-FRAGMENTATION FILMS DESIGNED FOR GLASS HAZARD MITIGATION

FILM TYPE	FILM GAUGE (in inches)	PLIES	VISIBLE LIGHT TRANSMISSION	UV LIGHT REDUCTION	ASTM D882 TENSILE AT BREAK	ASTM D3330 PEEL STRENGTH	ASTM D2582 AVG. PUNCTURE STRENGTH	ASTM D1044 % HAZE CHANGE	IMPACT TESTS: ANSI Z97.1 2004 TEST	IMPACT TESTS: 16 CFR 1201 US GOV. STANDARD TEST	IMPACT TESTS: AS/NZ 2208: 1996*	IMPACT TESTS: BS 6206: 1981	IMPACT TESTS: EN12600 PENDULUM TEST	SMOKE DENSITY	COMBUSTION TESTS (ASTM E84-98 Surface Burning Test): FLAME SPREAD RATING=5	COMBUSTION TESTS: TIME TO IGNITE (seconds)	COMBUSTION TESTS: FLAME FRONT (max. feet)	COMBUSTION TESTS: RATE OF BURNING (inches/seconds)
SEC02	0.002	1	88%	98%	50 pli	> 5lbs/inch	>30 lbs	<4.4%	–	–	–	–	–	20	NFPA Class A • UBC Class 1	205	1	0.1
SEC04	0.004	1	88%	98%	100 pli	> 5lbs/inch	>65 lbs	<4.4%	Class B	CAT I	Grade A	Class B	Class 2B	20	NFPA Class A • UBC Class 1	205	1	0.1
SEC06	0.006	2	88%	99%	CURRENTLY BEING TESTED													
SEC07	0.007	1	87%	98%	175 pli	> 5lbs/inch	>110 lbs	<4.4%	Class B	CAT I	Grade A	Class A	Class 2B	20	NFPA Class A • UBC Class 1	205	1	0.1
SEC08	0.008	2	87%	99%	200 pli	> 5lbs/inch	>130 lbs	<4.4%	Class A	CAT II	Grade A	Class A	Class 2B	35	NFPA Class A • UBC Class 1	92	2	0.1
SEC11	0.011	2	86%	99%	275 pli	> 5lbs/inch	>175 lbs	<4.4%	Class A	CAT II	–	Class A	Class 1B	35	NFPA Class A • UBC Class 1	92	2	0.1
SEC12	0.012	3	86%	99%	300 pli	> 5lbs/inch	>215 lbs	<4.4%	Class A	CAT II	–	Class A	Class 1B	35	NFPA Class A • UBC Class 1	92	2	0.1
S4DN35	0.005	2	37%	99%	100 pli	> 5lbs/inch	>65 lbs	<4.4%	Class B	CAT I	Grade A	Class B	Class 2B	20	NFPA Class A • UBC Class 1	205	1	0.1
S4DN20	0.005	2	22%	99%	100 pli	> 5lbs/inch	>65 lbs	<4.4%	Class B	CAT I	Grade A	Class B	Class 2B	20	NFPA Class A • UBC Class 1	205	1	0.1
S4SS35	0.005	2	35%	99%	100 pli	> 5lbs/inch	>65 lbs	<4.4%	Class B	CAT I	Grade A	Class B	Class 2B	20	NFPA Class A • UBC Class 1	205	1	0.1
S4SS20	0.005	2	19%	99%	100 pli	> 5lbs/inch	>65 lbs	<4.4%	Class B	CAT I	Grade A	Class B	Class 2B	20	NFPA Class A • UBC Class 1	205	1	0.1
S8DN35	0.009	3	37%	99%	200 pli	> 5lbs/inch	>130 lbs	<4.4%	Class A	CAT II	Grade A	Class A	Class 2B	35	NFPA Class A • UBC Class 1	92	2	0.1
S8DN20	0.009	3	20%	99%	200 pli	> 5lbs/inch	>130 lbs	<4.4%	Class A	CAT II	Grade A	Class A	Class 2B	35	NFPA Class A • UBC Class 1	92	2	0.1
S8SS20	0.009	3	19%	99%	200 pli	> 5lbs/inch	>130 lbs	<4.4%	Class A	CAT II	Grade A	Class A	Class 2B	35	NFPA Class A • UBC Class 1	92	2	0.1

SOLAR SPECIFICATIONS

FILM TYPE	SOLAR ENERGY REJECTION	VISIBLE LIGHT REFLECTANCE (exterior)	VISIBLE LIGHT REFLECTANCE (interior)	SOLAR ABSORPTION	SHADING COEFFICIENT	SOLAR HEAT GAIN COEFFICIENT	U-FACTOR NFRC
CLEAR GLASS	18%	8%	8%	16%	.94	.82	1.03
S4DN35	50%	17%	15%	51%	.58	.50	1.04
S4DN20	62%	26%	26%	58%	.44	.38	1.03
S4SS35	60%	33%	33%	41%	.47	.40	.97
S4SS20	72%	50%	51%	41%	.32	.28	.96
S8DN35	52%	19%	16%	52%	.55	.48	1.02
S8DN20	66%	30%	30%	59%	.39	.34	1.01
S8SS20	77%	59%	59%	41%	.26	.23	.95
S4RAGE35*	35%	5%	6%	42%	.75	.65	1.05
S4RAGE20*	40%	5%	5%	47%	.70	.60	1.05

* S4RAGE is for Automotive use only.

FIRE SAFETY PROPERTIES (Applies to all JWF Trident films)

ASTM E84
This fire-test response standard for the comparative surface burning behavior of building materials is applicable to exposed surfaces such as coated windows. This test is conducted in a rectangular fire observation chamber, a tunnel roughly 25 feet long, which provides a linear area for fire and smoke to propagate after ignition and be analyzed. The purpose of this test method is to determine the relative burning behavior of polyester film by observing combustion characteristics that are defined, such as: Smoke Generation, Time to Ignite, Rate of Burning and Flame Front.

SMOKE DENSITY
Used for characterization of smoke density that may be generated by the materials upon exposure to heat and flame under fire conditions.

TIME TO IGNITE
Measures the time it takes for the film to catch fire depending on the temperatures it's exposed to.

RATE OF BURNING
The speed at which the film burns once ignited.

FLAME FRONT
The narrow combustion zone (only several microns thick) where the chemical reaction in certain flames occur.

PERSONAL SAFETY GLAZING	BLAST HAZARD MITIGATION
ANSI Z97.1 2004 TEST CPSC 16 CFR 1201 AS/NZ 2208: 1996 BS 6206: 1981 JIS A5759 GB 9962-88 EN 12600	GSA Glazing Systems Subject to Airblast Loading

PHYSICAL TESTING

ASTM D 1929 (Self-Ignition temp.)	ASTM D 1044 / 1003 (Surface Abrasion test)
ASTM D 635 (Rate of Burning)	ASTM D 882 (Tensile Strength)
ASTM E 84 (Surface Burning char.)	ASTM D 3330 (Peel Strength)
ASTM E 162 (Surface Flammability)	ASTM D 4830 (Puncture Strength)
ASTM D 1922 / 1004 (Tear Resistance)	ASTM E 662 (Smoke O.D.)

All Johnson Window Films Trident films are protected by CST™ scratch resistant hardcoat.

Physical and solar specifications represent film mounted to 1/4 inch (6mm) clear glass.

Solar specification tests, equipment and methods are in accordance with ASTM, ANSI and NFRC standards. Values expressed hereof are typical and provided for comparative purposes only.

**AS/NZ 2208 test performed on 1/8 inch (3mm) clear glass.*

CN 1603

Johnson® Window Films
Manufactured by Johnson Laminating & Coating, Inc.
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