

IMPORTANT: This Technical Data Sheet provides an overview of product performance. Prior to product selection you should refer to the current 3M Technical Specifications for more detailed product information and specifications.

Product Features and Benefits

- Combination safety / solar control window film
- Micro-layered film designed for tear resistance
- Tinted film with heat rejection properties
- Helps protect from broken glass hazards
- Increase comfort and help reduce air conditioning costs
- Helps extend the life of furnishings by significantly reducing harmful UV rays

Applications

- Bomb Blast Mitigation
- Building Envelope Protection
- Helping to Deter Break & Entry
- Safety Glazing
- Seismic Preparedness
- Spontaneous Glass Breakage

Film Properties (typical)

Film Thickness	8 mils nominal
Film Construction	Micro-layered Laminated
Tensile Strength	28,500 psi (MD) / 26,000 psi (TD)
Break Strength	230 lbs/in (MD) / 210 lbs/in (TD)
Elongation at Break	145% (MD) / 140% (TD)
Yield Strength	16,000 psi (MD)
Elongation at Yield	8%
Modulus	575 kpsi
Abrasion Resistance (ASTM D1044)	< 3% Δ Haze
Peel Strength (ASTM D3330)	4.1 lb/in
Flammability (ASTM E84)	Class A
Graves Area Tear Resistance (ASTM D1004)	1,200 lbs% (MD) / 950 lbs% (TD)
Puncture-Propagation-Tear (ASTM D2582)	11 lbf
Puncture Strength (ASTM D4830)	207 lbf

Solar Properties – film applied to 1/4" glass

	1/4" Clear	1/4" Tint	Dual Clear	Dual Tint
VLT	25%	14%	22%	13%
VLR-Int	10%	10%	10%	10%
VLR-Ext	25%	12%	28%	13%
SHGC	0.38	0.36	0.47	0.37
TSER	62%	64%	53%	63%
UV Block	>99.9%	>99.9%	>99.9%	>99.9%
Glare ↓	72%	72%	72%	72%
U-Value	1.04	1.02	0.48	0.48
Solar Heat ↓	54%	43%	33%	28%

Performance Testing

Method	Glass Substrate *	Film Attachment **	Rating	
Safety Glazing / Impact Rating				
16 CFR 1201 ANSI Z97.1	1/8" and 1/4" annealed	--	Category 2, 400 ft-lbs and Category 1, 150 ft-lbs Class A (Unlimited), 400 ft-lbs and Class B (Unlimited), 150 ft-lbs	
Impact Resistance				
ASTMs E1886/E1996	1/4" tempered	IPA	Missile Level "A"	
Blast Mitigation			Blast Load	Rating
GSA TS01-2003 / ASTM F1642	1/4" tempered	IPA	6 psi, 42 psi*msec	GSA Level 2 / ASTM "No Hazard"
	1" double pane (annealed)	IPA	6 psi, 42 psi*msec	GSA Level 2 / ASTM "No Hazard"
	1" double pane (tempered)	IPA	9 psi, 80 psi*msec	GSA Level 2 / ASTM "No Hazard"

* Based on dry lamination of film to single pane glass and wet lamination of film to double pane insulated glass units.

** IPA = 3M™ Impact Protection Attachment Sealant, all 4 sides unless noted.

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