

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
- Virtually clear 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 Properties (ASTM D882)	
Tensile Strength	25,600 psi (MD) / 25,000 psi (TD)
Break Strength	205 lbs/in (MD) / 200 lbs/in (TD)
Elongation at Break	110% (MD) / 135% (TD)
Yield Strength	15,000 psi (MD)
Elongation at Yield	7% (MD)
Modulus	550 kpsi
Abrasion Resistance (ASTM D1044)	<5% Δ Haze
Peel Strength (ASTM D3330)	5.3 lb/in
Flammability (ASTM E84)	Class A
Graves Area Tear Resistance (ASTM D1004)	1,150 lbs%
Puncture-Propagation-Tear (ASTM D2582)	12 lbf
Puncture Strength (ASTM D4830)	193 lbf

Solar Properties – film applied to 1/4" glass				
	1/4" Clear	1/4" Tint	Dual Clear	Dual Tint
VLT	70%	42%	62%	37%
VLR-Int	8%	7%	13%	11%
VLR-Ext	9%	6%	15%	9%
SHGC	0.52	0.45	0.57	0.43
TSER	48%	48%	43%	57%
UV Block	99.9%	99.9%	99.9%	99.9%
Glare ↓	22%	22%	21%	22%
U-Value	1.06	1.03	0.48	0.48
Solar Heat ↓	37%	29%	19%	17%

Performance Testing

Method	Glass Substrate *	Film Attachment **	Rating	
Safety Glazing				
16 CFR 1201	1/8" and 1/4" annealed	--	Category 2, 400 ft-lbs and Category 1, 150 ft-lbs	
ANSI Z97.1			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				
GSA TS01-2003 / ASTM F1642	1/4" tempered	IPA	6 psi, 42 psi*msec	GSA Level 2 / ASTM "No Hazard"
	1" double pane (tempered)	IPA	9 psi, 60 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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