

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

- Micro-layered film designed for tear resistance
- Optically clear
- Applies to interior glass surfaces
- Helps protect from broken glass hazards
- Helps extend the life of furnishings by significantly reducing harmful UV rays

Applications

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

Film Properties (typical)

Film Thickness	8 mils (203μ) nominal *
Film Construction	Micro-layered
Tensile Properties (ASTM D882)	
Tensile Strength	31,500 psi
Break Strength	253 lbs/in
Elongation at Break	135%
Yield Strength	15,000 psi
Elongation at Yield	8%
Modulus	520 kpsi
Other Physical Properties	
Graves Area Tear Resistance (ASTM D1004)	1,100 lbs% (MD) /1,050 lbs% (TD)

Puncture-Propagation-Tear Resistance (ASTM D2582)	10 lbf (MD) / 12 lbf (TD)
Puncture Strength (ASTM D4830)	183 lbf
Abrasion Resistance (ASTM D1044)	<5% Δ haze
Peel Strength (ASTM D3330)	6 lbs/in
Flammability (ASTM E84)	Class A
Solar Properties – film applied to 1/4" clear glass	
Visible Light Transmitted	88%
UV Light Rejected	99%

* Total thickness with adhesive is 9mils (230 μ)

Performance Testing

Method	Glass Substrate	Film Attachment *	Blast Load	GSA Performance Condition and/or ASTM Hazard rating
Blast Mitigation				
GSA TS01-2003 ASTM F1642	1/4" annealed	IPA	6 psi, 42 psi msec	GSA Rating of "3a" ASTM F1642 "Minimal Hazard"
GSA TS01-2003 ASTM F1642	1/4" annealed	IPA	7.5 psi, 55 psi msec	GSA Rating of "3a" ASTM F1642 "Low Hazard"
GSA TS01-2003 ASTM F1642	1" double pane annealed	IPA	6 psi, 42 psi msec	GSA Rating of "2" ASTM F1642 "Minimal Hazard"
GSA TS01-2003 ASTM F1642	1" double pane annealed	IPA	9 psi, 70 psi msec	GSA Rating of "3B" ASTM F1642 "Low Hazard"
GSA TS01-2003 ASTM F1642	1" double pane tempered	IPA	9 psi, 70 psi msec	GSA Rating of "2" ASTM F1642 "Minimal Hazard"
GSA TS01-2003	1" double pane tempered	IPA	10 psi, 75 psi msec	GSA Rating of "2" ASTM F1642 "Minimal Hazard"
GSA TS01-2003 ASTM F1642	1" double pane tempered	IPA (2 sides)	6.8 psi, 47 psi msec	GSA Rating of "3a" ASTM F1642 "Very Low Hazard"
GSA TS01-2003 ASTM F1642	1/4" tempered	IPA (2 sides)	6.5 psi, 40 psi msec	GSA Rating of "3a" ASTM F1642 "Very Low Hazard"
GSA TS01-2003	1/4" tempered	IPA	7.6 psi, 51 psi msec	GSA Rating of "2"
GSA TS01-2003	1" double pane annealed	IPA (2 sides)	6.84 psi, 45 psi msec	GSA Rating of "3b"

Method	Glass Substrate	Film Attachment *	Rating
Safety Glazing			
16 CFR 1201	1/4" & 1/8" 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 C +/- 75 psf
ASTMs E1886 / E1996		IPA	Missile Level A +/- 75 psf

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

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Commercial Solutions Division

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