Science.
Applied to Life.™

3M™ Safety & Security Window Films

Applied to protect what is near and dear to you!

3M™ Safety and Security Films. Heritage. Technology. Warranty.

At 3M, we believe that science is just science until you apply it to life and use it to improve the world. We use science every day to improve lives and solve problems. We have 46 core technology platforms which range from adhesives and films to micro replication, abrasives and advanced materials.

Our teams have the ability and competence to combine and mix these core technologies in creative ways, to create new products that exactly meet the needs of many customers around the world.

Besides the fact that 3M invented the first reflective window film in 1966, people and businesses all over the world have been trusting in 3M's heritage of window films for decades. In 1998, the first multi-layer window film was invented by 3M. In 2006, with the introduction of multilayer films, window film technology reached new levels applying a co-extrusion manufacturing process. 3M window films combine multiple key technologies including films, adhesives, coatings and nanotechnology.

Window films provide various advantages and add many benefits to existing building glazing. From glass shatter retention to protection against vandalism, from burglary to blast mitigation, 3M window films protect corporate offices, public buildings, transportation infrastructure and hospitals. Always to ensure a maximum level of safety for you.

Finally, the 3M warranty makes the difference. Knowing that a good product is nothing without the right application, 3M has a network of partners we trust. These installers will ensure that the film will be fitted to our standards and to your full satisfaction.

Tested and re-tested.

All 3M window films have been tested and re-tested according to European and international standards. Tests defined by those standards try to simulate the hazards of real life in a reproducible testing environment.

Due to the specific use of each 3M window film, every film is tested according to the relevant standards. Finally, the reason for the glass breakage defines these standards and test methods.

Glass breakage

The test carried out according to EN 12600 uses a pendulum to simulate a slower moving but heavy object (50 kg) crashing into a glazing. In real life this could be people or animals. It's not just about the shards being kept together, it is also about the person not "falling" through the glazing.

Resistance to manual attack

EN 356 is testing the glass-film-system regarding the resistance to a manual attack. This glass breakage can be the result of a stone being thrown at the window or of a baseball bat trying to smash the glazing in a riot or burglary. To simulate this impulse of a lighter but fast moving object, the sytem is tested horizontally with a falling ball.

Blast test

The ASTM blast tests are real life explosions to determine the blast mitigation capabilities of the glass-film-system. This system can be even enhanced by establishing an anchorage of the film to the frame. 3M provides two product series: The Impact Protection Profile and the Impact Protection Adhesive.

Spontaneous glass breakage

Glass can also break without any "direct" impulse being involved. Thermal or mechanical stress, nickel sulfide particles or seismic incidents can break a glazing. Keeping the shards together and establishing the retention of the glazing will avoid injuries and casualties. This requires a product with a reliable adhesive and a superior tensile strength.

Film Properties - Safety

Product	Thickness [µm]	Film Type	Application	Intended Use	Impact Classification	Fire Testing*
S40	100	1 Ply, clear	interior	Protection against vandalism Glass retention (basic)	EN12600: 2B2	EN 45545: HL1, HL2, HL3 EN 13501-1: B-s1,d0
S70	175	1 Ply, clear	interior	Protection against vandalism Glass retention (basic)	EN12600: 2B2	EN 45545: HL1, HL2, HL3 EN 13501-1: B-s1,d0
S80	200	2 Ply, clear	interior	Protection against vandalism Glass retention (high)	EN12600: 1B1	EN 13501-1: B-s1,d0
S140	325	3 Ply, clear	interior	Protection against vandalism Glass retention (high)	EN356: P2A	EN 13501-1: B-s1,d0
S800	200	multilayer, clear	interior	Protection against vandalism Glass retention (high) Blast mitigation	EN12600: 1B1 EN356: P1A	EN 13501-1: B-s1,d0
S40EX	100	1 Ply, clear	exterior	Protection against vandalism Spontaneous glass breakage Glass retention (basic)	EN12600: 2B2	EN 45545: HL1, HL2, HL3 EN 13501-1: B-s1,d0
S70EX	175	2 Ply, clear	exterior	Protection against vandalism Spontaneous glass breakage Glass retention (basic)	EN12600: 2B2	EN 45545: HL1, HL2, HL3 EN 13501-1: B-s1,d0

* Information on tests according to local regulations on request

3M™ Scotchshield™ Ultra S800

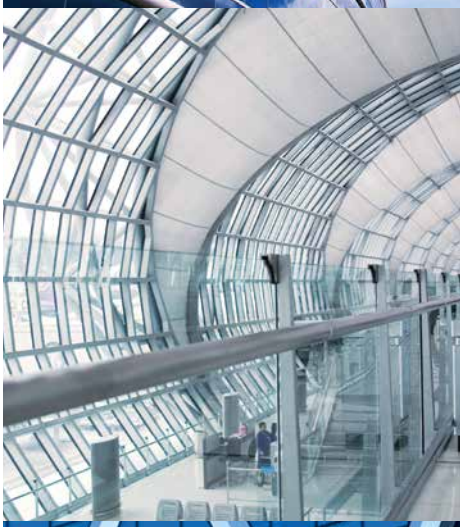
The Ultra Safety & Security Window Film utilizes a co-extruded multilayer to provide immense strength and tear resistance compared to standard films. In case of glass breakage, fragments are retained on the film by a strong acrylic adhesive system. This product delivers superior performance over standard polyester films in blast and impacts and provides a high level of optical clarity.

- Enhanced security
- Protection from injuries or damage caused by fragments of broken glass
- Blast mitigation properties in combination with the Impact Protection Profile anchorage system
- Resistance to vandalism or smash and grab burglaries
- Reduction of fading from UV light
- Abrasion resistance to keep the appearance of the film

3M™ Safety Series

3M Safety Series Films are composed of a transparent and weather stable polyester film with a scratch resistant surface and a strong acrylic adhesive. The films' high tensile strength and elongation at break increases resistance of the overall glazing system to impact and pressure. In case of glass breakage the fragments are retained by a strong acrylic adhesive.

- Protection from injuries or damage caused by fragments of broken glass
- Resistance to vandalism or smash and grab burglaries
- Reduction of fading from UV light
- Abrasion resistance to keep the appearance of the film



3M™ Safety Exterior Series

3M Safety Series Films are composed of a transparent and weather stable polyester film with an outdoor durable, scratch resistant surface and a strong acrylic adhesive. The films' high tensile strength and elongation at break increases resistance of the overall glazing system to impact and pressure. In case of glass breakage the fragments are retained by the strong acrylic adhesive.

- Protection against injuries to persons or damage to items caused by the fragmentation of glass
- Glass retention in case of spontaneous glass breakage
- Reduction of fading from UV light
- Outdoor durable and abrasion resistant coating to maintain its appearance

3M™ Ultra Combination Films

In addition to clear Safety and Security films, 3M offers a range of combination films that provide all the advantages of the Scotchshield Ultra Series in combination with the capabilities of a sun control film.

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluates the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method or application.

Values presented have been determined by standard test methods and are average values not meant to be used for specification purposes.

All questions of warranty and liability relating to these 3M products are governed by the terms of the respective sale subject, where applicable, to the prevailing law.

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