

3M Renewable Energy Division  
3M™ Safety and Security Window Films



often goes **unnoticed**



[3M.co.uk/windowfilms](http://3M.co.uk/windowfilms)



## 3M™ Safety and Security Films

3M are leading manufacturers in safety and security window films. 3M's extensive range includes Ultra Safety, Ultra Combination, Standard Safety and 3OPL. These films provide varying degrees of protection from shatter-resistance to bomb blast protection, essential for improved glazing safety within buildings. Whether it's protecting corporate offices, public and government buildings, transportation infrastructure or hospitals, 3M Security Films help you increase safety where it's needed most.

Protecting people and property is a key issue, especially with increased occupancy levels found in sporting and leisure facilities, shopping centres and other public and commercial spaces. Glass can be a vulnerable and dangerous material, with the potential to cause serious injury when broken.

3M films can help you adhere to the strict UK glass safety legislation. All 3M Safety Films have been tested to EN12600 and/or EN356. 3M Safety Film S140 has been tested and approved according to EN3560 (falling ball test) and it is classified as P2A on 6mm float glass, certifying it as a manual attack standard film.

Since 3M invented window films in 1966 it has led the way in unique film technologies. The 3M Ultra range are not only safety and security films but also solar control films that can help reduce energy bills. They reduce solar heat gain, reduce hot spots and damaging UV rays, while also helping to hold the glass together in the event of a breakage.



All 3M window films can be applied quickly and with minimum disruption by a 3M authorised installer, countrywide. 3M provides an extensive warranty on all its safety and security films including the installation by our authorised dealers.

3M 3OPL is a decorative window film which can add privacy and style within your building. It provides an excellent solution to protect rooms from observation in busy work places whilst retaining excellent light transmission, and safety in the event of glass breakage.

**Free Glazing Assessment**  
**Free Energy Reduction Assessment**

See how applying window film to your building can provide you with enhanced safety and security, energy reduction and occupant comfort solutions, by contacting us at:

**Tel: 0845 600 9543**  
**Email: [RenewableUK@mmm.com](mailto:RenewableUK@mmm.com)**  
**[3M.co.uk/windowfilm](http://3M.co.uk/windowfilm)**

Privacy  
Shatter-resistance



## 3M™ Ultra Combination Films

The ultimate in safety, security and solar control window film technology, combining 28 micro-layers of strong, tear-resistant Ultra Safety Film with the added advantage of 3M Sun Control Films.

- Allows up to 70% of the visible light through your windows
- Holds glass together in the event of a break-in or breakage incident
- Blocks heat and reduces hot spots by rejecting up to 97% of the sun's infrared rays (see light transmission table)
- Reduce energy bills by lowering the workload of air conditioning units



## 3M™ Ultra Series

The Ultra Series Window Films utilise up to 42 micro-layers to provide immense strength and tear resistance compared to standard films. In the case of glass breakage, the fragments are held on the film by the strong acrylic adhesive system. The film delivers superior performance over standard polyester films in blast and impacts, yet still maintains a high level of optical clarity.

- Up to 32 times more resistant against tearing than other safety films of the same thickness
- Provides enhanced security
- Protection against injuries to persons or damage to items caused by fragments of broken glass
- Abrasion resistant coating to maintain its appearance



## 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 film's high tensile strength and elongation at break increases resistance of the overall glazing system to impact and pressure. They provide effective protection from injuries to persons, or damage to items caused by the fragments of broken glass. In the case of glass breakage the fragments are retained by the strong acrylic adhesive.

- Provides protection against injuries to persons or damage to items caused by the fragmentation of glass
- Resists smash and grab burglaries
- Reduces fading from UV light
- Abrasion resistant coating to maintain its appearance



## 3M™ Privacy Film 3 OPL

3M Privacy Film 3 OPL is designed for use on the inside surface of windows. The film is a non-transparent film with great light transmission and is an effective way to protect rooms from observation.

3M Privacy Film 3 OPL meets the safety requirements of EN 12600 (pendulum test). Class 2B2 was reached on 4mm glass.

- Provides protection against injuries to persons or damage to items caused by fragments of broken glass
- Increased privacy
- Helps prevent fading of furniture and fabrics
- Can be used for manifestation or decorative purposes

All 3M™ Safety Films have been tested to EN12600 and/or EN356.



## Film Properties - Safety

Glass type	Film Type	Visible Light Transmitted %	Visible Light Reflected interior %	Tensile Strength ASTM D882-95a	Elongation at break ASTM D882-95a	Break strength ASTM D882-95a	Puncture Propagation ASTM D2582-03	Tear Resistance ASTM D 1004-95a
Single Pane		N/ 25,4 mm N/25,4 mm N/25,4mm						
Clear	Ultra S400	86	11	206 N/mm <sup>2</sup>	140%	54 kg	3,4kg	>353 kg
Clear	Ultra S600	84	10	206 N/mm <sup>2</sup>	140%	81 kg	8,71 kg	>521 kg
Clear	Safety S40 Ex	86	8	197 N/mm <sup>2</sup>	125%	45 kg	0,95 kg	
Clear	Safety S40	87	8	197 N/mm <sup>2</sup>	100%	45 kg	0,95 kg	
Clear	Safety S70	86	9	197 N/mm <sup>2</sup>	120%	79 kg	1,04 kg	2,31 kg
Clear	Safety S80	86	9	197 N/mm <sup>2</sup>	120%	90 kg	1,09 kg	2,77 kg
Tinted	Ultra S400	47	6	206 N/mm <sup>2</sup>	140%	54 kg	3,4kg	>353 kg
Tinted	Ultra S600	47	6	206 N/mm <sup>2</sup>	140%	81 kg	8,71 kg	>521 kg
Tinted	Safety S40 Ex	50	8	197 N/mm <sup>2</sup>	125%	45 kg	0,95 kg	
Tinted	Safety S40	47	6	197 N/mm <sup>2</sup>	100%	45 kg	0,95 kg	
Tinted	Safety S70	47	6	197 N/mm <sup>2</sup>	120%	79 kg	1,04 kg	2,31 kg
Tinted	Safety S80	47	6	197 N/mm <sup>2</sup>	120%	90 kg	1,09 kg	2,77 kg
Double Pane								
Clear	Ultra S400	75	18	206 N/mm <sup>2</sup>	140%	54 kg	3,4kg	>353 kg
Clear	Ultra S600	73	18	206 N/mm <sup>2</sup>	140%	81 kg	8,71 kg	>521 kg
Clear	Safety S40 Ex	75	17	197 N/mm <sup>2</sup>	125%	45 kg	0,95 kg	
Clear	Safety S40	77	15	197 N/mm <sup>2</sup>	100%	45 kg	0,95 kg	
Clear	Safety S70	77	16	197 N/mm <sup>2</sup>	120%	79 kg	1,04 kg	2,31 kg
Clear	Safety S80	77	16	197 N/mm <sup>2</sup>	120%	90 kg	1,09 kg	2,77 kg
Tinted	Ultra S400	42	8	206 N/mm <sup>2</sup>	140%	54 kg	3,4kg	>353 kg
Tinted	Ultra S600	41	8	206 N/mm <sup>2</sup>	140%	81 kg	8,71 kg	>521 kg
Tinted	Safety S40 Ex	44	10	197 N/mm <sup>2</sup>	125%	45 kg	0,95 kg	
Tinted	Safety S40	45	14	197 N/mm <sup>2</sup>	100%	45 kg	0,95 kg	
Tinted	Safety S70	43	8	197 N/mm <sup>2</sup>	120%	79 kg	1,04 kg	2,31 kg
Tinted	Safety S80	43	8	197 N/mm <sup>2</sup>	120%	90 kg	1,09 kg	2,77 kg

Reduce energy bills  
Blast protection

## Light transmission table for Ultra Solar, Silver S420 and 3OPL Films

Glass type	Film Type	SC	VLR %	VLT %	Emissivity	u-value	g-value	TSER
Single Pane								
Clear	Ultra Neutral S35	0.51	20%	37%	0.84	1.06	0.44	56%
Clear	Ultra NV S25	0.43	28%	24%	0.72	0.82	0.36	64%
Clear	Ultra PR S70	0.57	9%	66%	0.77	0.99	0.5	50%
Clear	Silver S420	0.26	51%	17%	0.65	0.95	0.22	78%
Clear	3 OPL	0.82	14%	71%	1	0.61		29%
Tinted	Ultra Neutral S35	0.45	9%	22%	0.84	0.5	0.39	61%
Tinted	Ultra NV S25	0.43	13%	15%	0.72	0.82	0.34	66%
Tinted	Ultra PR S70	0.5	8%	40%	0.77	0.99	0.43	57%
Tinted	Silver S420	0.3	20%	10%	0.65	0.95	0.26	74%
Tinted	3 OPL	0.6	10%	45%	0.87	0.52		48%
Double Pane								
Clear	Ultra Neutral S35	0.58	24%	33%	0.84	0.5	0.5	50%
Clear	Ultra NV S25	0.5	28%	23%	0.84	0.5	0.44	56%
Clear	Ultra PR S70	0.55	13%	59%	0.84	0.46	0.55	45%
Clear	Silver S420	0.34	51%	17%	0.65	0.47	0.3	70%
Clear	3 OPL	0.74	19%	63%	0.83	0.64		36%
Tinted	Ultra Neutral S35	0.43	10%	19%	0.84	0.5	0.37	63%
Tinted	Ultra NV S25	0.39	15%	14%	0.72	0.42	0.34	66%
Tinted	Ultra PR S70	0.48	12%	36%	0.77	0.46	0.42	58%
Tinted	Silver S420	0.28	20%	9%	0.65	0.47	0.24	76%
Tinted	3 OPL	0.53	10%	38%	0.83	0.46		56%

**u-value:** The ability to prevent thermal energy loss **g-value:** Solar Heat Gain Coefficient **TSER:** Total Solar Energy Rejected

### Installation

3M Window films are installed using a water and soap solution. Full adhesion is reached after approximately 20 days at 18°C (in dry conditions).

### Cleaning

3M Window films may be cleaned 30 days after installation using ordinary window cleaning agents and avoiding the use of abrasive products. Do not use rough sponges, cloths or brushes. Synthetic sponges, soft wipes or rubber squeegee cleaners are recommend.

#### General notes:

All technical data is based on a combination of relevant European test methods and/or US test methods. Before using this product the customer / applicator must ensure the product is suitable to be used for the intended purpose. If there is any uncertainty, please check with your local 3M Window Film specialist. All issues regarding warranty and liability for the product and the effect of its use are governed in accordance with the provisions of the appropriate contract of sale unless local laws dictate otherwise.



**3M Renewable Energy Division**  
**3M United Kingdom plc**

3M Centre  
 Cain Road, Bracknell  
 Berkshire RG12 8HT  
 3M.co.uk/windowfilm  
 Email: RenewableUK@mmm.com

**3M Ireland Limited**

The Iveagh Building  
 The Park  
 Carrickmines  
 Dublin 18  
 Phone: 01 280 3555

**Customer Service**

3M House  
 28 Great Jackson Street  
 Manchester M15 4PA  
 Tel: 0845 600 954

Resilience management  
 Enhanced protection

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