



Blockout Film

3635-20; 3635-22

Day and Night Film

3635-91

Product Bulletin

Product Description These cast films are light management films to create durable permanent channel letters, signs and displays.

Films 3635-20 and 3635-22 block out light when applied to internally illuminated signs.

Film 3635-91 produces the appearance of dark graphics during the day and white or colored graphics at night on internally illuminated signs.

Product Line	Illuminated signage	3635-20	white on face side and black on adhesive side, opaque, matte, permanent adhesive.
		3635-22	black on face side and white on adhesive side, opaque, matte, permanent adhesive.
		3635-91	grey, translucent, semi-matte, permanent adhesive.

Product Characteristics These are typical values for unprocessed products.
Contact your 3M representative for a custom specification.

Physical & Application	Material	cast vinyl		
	Surface finish	semi-matte		
	Thickness (film)	3635-20	100 µm (0.1 mm)	
		3635-22	100 µm (0.1 mm)	
		3635-91	50 µm (0.05 mm)	
	Adhesive type	pressure-sensitive		
	Adhesive appearance	clear		
	Liner	Kraft paper		
	Adhesion	approx. 15 N/25 mm		FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH
	Application method	wet or dry		
	Applied shrinkage	< 0.3 mm		FTM 14
	Application temperature	+16°C	minimum (air and substrate)	
	Service temperature	-44°C to +77°C		
	Surface type	flat to simple curved		
Substrate type	glass, PMMA, PC*, PETG*		PC*, PETG*: Might require drying with heat before use	
Graphic removal	Fair to remove with heat and/or chemicals from supported substrates.		No liability is given for ease or speed of removal of any graphic. Pay attention to adequate air and substrate temperature.	
Storage	Shelf life	2 years from the date on the original box Up to 2 years unprocessed, or processed within 1 year and apply within 1 year of processing		
	Storage conditions!	+4°C to +40°C, out of sunlight, original container in clean and dry area.		

Flammability Flammability standards are different from country to country. Ask your local 3M contact for details, please.

Durability

Unprocessed film

The following durability data are given for unprocessed film only!

3M Performance Guarantee and 3M™ MCS™ Warranty

In addition, 3M provides a guarantee/warranty on a finished applied graphic within the framework of 3M Performance Guarantee and/or 3M™ MCS™ warranty programs.

Visit www.3Mgraphics.com for getting more details about 3M's comprehensive graphic solutions.

Climatic zones

Graphic durability is largely determined by the climate and the angle of exposure. Find below a table showing the durability of a product according to the angle of exposure and the geographical location of the application.

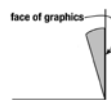
Zone 1 Northern Europe, Italy (north of Rome), Russia

Zone 2 Mediterranean area without North Africa, South Africa

Zone 3 Gulf area, Africa

Exposure types

Vertical:



The face of the graphic is $\pm 10^\circ$ from vertical.

Vertical outdoor exposure	Zone 1	Zone 2	Zone 3
3635-20	10 years	7 years	5 years
3635-22	10 years	7 years	5 years
3635-91	9 years	6 years	4 years

Limitations of End Uses

3M specifically does not recommend or warrant the following uses, but please contact us to discuss your needs to recommend other products.

Graphics applied to

- low surface energy substrates or substrates with low surface energy coating.
- other than flat or moderate curved/corrugated surfaces.
- stainless steel.
- surfaces that are not clean and smooth.

Important Notice

- 3M Commercial Graphics Division products are not tested against automotive manufacturer specifications!
- Non vertical applications will have a significant decrease in durability!
- 3M accepts no liability for glass breakage. See instruction bulletin 5.1 for details.
- Abrasion damage and loss of gloss are not covered by any 3M warranty. This is considered normal wear and tear.

Graphics Manufacturing

Graphic protection can improve the appearance, performance and durability of printed graphics. Any printed graphic exposed to abrasive conditions (including vehicles), harsh cleaners or chemicals must include graphic protection in order to be warranted.

When to use an overprint clear or overlaminate

See instruction bulletin GPO 'graphic protection options' for further information about selection and use of protective overlaminates and printable clears.

[> Product Bulletin Graphic Protection Options <](#)

Shipping finished graphics

Flat, or rolled film side out on 130 mm (5 inch) or larger core. These methods help to prevent the liner from wrinkling or application tape, if used, from popping off.

Converting Information Screen Printing

Formulations and processing conditions can affect ink durability. Refer to the 3M Product and Instruction Bulletins for your ink for limitations and proper usage. Graphic protection can improve the appearance, performance and durability of your graphic.

A clear coat also prevents chalking on unprinted films. Use equipment designed to handle high viscosity materials and make sure the coating is evenly applied to the specifications given in the clear's Instruction Bulletin.

Converting Information Thermoforming

There are unique health and safety considerations that must be understood prior to vacuum forming faces using translucent films.

Refer to Instruction Bulletin 5.16 'Thermoforming' for special recommendations, limitations and processing requirements when forming with applied films.

[>Instruction Bulletin 5.16 'Thermoforming'<](#)

Elongation limit Forming of applied film on sheets should not exceed 50% elongation.

Application

See product bulletin ATR 'application tape recommendations' for information about selection and use of suitable application tapes for this product, please.

[> Product Bulletin Application Tape Recommendations <](#)

Refer to Instruction Bulletin 5.1 'select and prepare substrates for graphic application', for general application information.

[>Instruction Bulletin 5.1 'select and prepare substrates for graphic application'<](#)

Maintenance and Cleaning

Use a cleaner designed for high-quality painted surfaces. The cleaner must be wet, non-abrasive, without strong solvents, and have a pH value between 3 and 11 (neither strongly acidic nor strongly alkaline).

Refer to Instruction Bulletin 6.5 'storage, handling, maintenance and removal of films and sheetings', for general maintenance and cleaning information.

[>Instruction Bulletin 6.5 'Storage, Handling, Maintenance and Removal of Films and Sheetings'<](#)

Important safety remark

Application to glass

The application of colored or printed film onto glass can lead to glass breakage through thermal expansion of the glass. The local conditions must be examined for the danger of glass break by uneven heat absorption through sun exposure. Type of glass (insulation glass, float glass, VSG, ESG, etc.), glass dimension, joint condition, flexibility of the sealant, quality of the edge finishing, geographical orientation and partial shadow during sun exposure are the determining factors.

Light color designs and application on the outside of the window are to be preferred. A free non-applied framework of 4 mm around the entire window front can help to dissipate the absorbed warmth.

According to common knowledge a thermal crack can occur at temperature differences of approx. 130°C (ESG), approx. 40°C (float glass) or 110°C (TVG).

Coldest place is usually under the framework in the embedded joined window part, the warmest place is typically on the darkest place in the format.

Because of the many above mentioned factors, glass breakage cannot be fully predicted, therefore 3M does not accept liability for glass breakage when using this film for window graphics.

Remarks

Important notice

This bulletin provides technical information only.

All questions of warranty and liability relating to this product are governed by the terms and conditions of the sale, subject, where applicable, to the prevailing law.

Before using, the user must determine the suitability of the product for its required or intended use, and the user assumes all risk and liability whatsoever in connection therewith.

Additional Information

Visit the web site of your local subsidiary at www.3Mgraphics.com for getting more:

- details about 3M™ MCS™ Warranty and 3M Performance Guarantee
- additional instruction bulletins
- a complete product overview about materials 3M is offering



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