



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* <small>PC*, PETG*: Might require drying with heat before use</small>
	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.

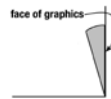
Zone 1 Northern Europe, Italy (north of Rome), Russia

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 overlaminates

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

Thermoforming 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'](#)<

Remarks This bulletin provides technical information only.

Important notice 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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