

Physical Properties

The values displayed are the results of illustrative lab test measures made according to the indicated external norm and shall not be considered as a commitment from 3M.

Characteristic	Value
Material	Cast vinyl
Thickness	Film without adhesive: 0,05 ± 0,005 mm
ISO 534	Film with adhesive: 0,085 ± 0,005 mm
Adhesive	Acrylic, pressure-sensitive
Adhesive appearance	Grey
Indicative values	Aluminum etched 28 ± 2 N/25 mm
FTM 1, 24 h 23°C/50%RH	
Applied shrinkage FTM 14	0,4 mm
Liner	Films available with Kraft paper and double-sided Polyethylene coated paper - versions indicated by a letter: A, C: Kraft paper; B, D: coated paper
Application method	Dry only
Substrate types	Aluminum, glass, PMMA, PC*, ABS, paint** The application of film onto glass can cause glass break by uneven heat absorption through sun exposure. 3M does not accept liability for glass breakage. * Polycarbonate substrates may require oven drying before use due to outgassing of moisture from the polycarbonate causing the film to bubble. Refer to the manufacturers' instructions. ** Check adhesion to powder-coated or water-based paints
Application temperature	4 – 38 °C Flat 10 – 38 °C Simple curves and rivets
3M recommends application at +18°C to +22°C for optimum ease of application.	
Temperature range after application	-50 to +90°C (not for extended periods of time at the extremes)
Chemical Resistance	<ul style="list-style-type: none"> • Resists mild alkalis, mild acids, and salt • Excellent resistance to water (does not include immersion) • Resists occasional fuel spills
Flammability	Flammability standards are different from country to country. Ask your local 3M contact for details, please. <u>Follow the link to check for available fire certificates.</u>

Warranty Information

3M Basic Product Warranty

3M Graphics Products are warranted to be free of defects in materials and manufacture at the time of shipment and to meet the specifications stated in its applicable 3M Graphics Product Bulletin and as further set forth in the 3M Graphics Warranties Bulletin.

3M™ Performance Guarantee and MCS™ Warranty

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

Follow the link for a complete list of compatible products that are approved by 3M for use with the base film covered in this Bulletin and used for the creation of a graphic that may be eligible for the 3M™ MCS™ Warranty or 3M Performance Guarantee.

Limited Remedy

Unsuitable End Uses

3M recommended product end uses are listed in each 3M graphics product bulletin. End uses not listed in the applicable 3M Graphics Product Bulletins are typically not eligible for 3M Graphics Warranties. For non-recommended and/or non-warranted end uses or applications, users must test and approve the end uses or applications, assume any associated risks, and acknowledge that 3M has no liability for such end uses or applications. Please contact your 3M representative with any questions about graphic applications, end uses, and warranties.

Limitations of liability

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. 3M Commercial Solutions products are not tested against automotive manufacturer specifications!

Graphic Manufacturing

Ink jet printing

A too high total physical ink amount on the film results in media characteristic changes, inadequate drying, overlamine lifting, and/or poor graphic performance. The maximum recommended total ink coverage for this film is 270%.

See the individual ink bulletins for details, please.

IMPORTANT NOTE: Incomplete drying or curing can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under any 3M Graphic Warranty.

Special Instructions for HP Latex 831/891.

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.

Whether you apply screen print clears with traditional screening methods or roller coating, use equipment designed to handle high viscosity materials and make sure the coating is evenly applied to the specifications in the clear's 3M Instruction Bulletin.

See the individual ink bulletins for details, please.

Sheeting, Scoring and Film Cutting

See 3M Instruction Bulletin 4.1 for Sheeting, Scoring and Film Cutting details.

Application and Installation

In addition to other 3M Bulletins specified in this document, the following Bulletins provide details that you may need to successfully apply a graphic.

See 3M Instruction Bulletin 4.22 to obtain general information about ink drying and lamination of printed graphics.

See 3M Instruction Bulletin 5.5 for general procedures for interior and exterior dry application.

Maintenance, Cleaning and Removal

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

These films are not designed to be removed. In some cases they can be removed, but with great difficulty and could damage the substrate. If they are removed, they may leave significant adhesive residue.

See 3M Instruction Bulletin 6.5 for information about storage, handling, maintenance and removal of films and sheetings.

Shelf Life, Storage and Shipping

The shelf life as defined below remains an indicative and maximum data, subject to many external and non-controllable factors. It may never be interpreted as warranty.

The shelf life is never more than 3 years from the date of manufacture on the original box. If you process the film, the shelf life is changed to 1 year from the processing date, but not later than the 3-year maximum from the manufacturing date.

Storage conditions: +4°C to +40°C, out of sunlight, original container in clean and dry area.

Shipping finished graphics: Flat or rolled printed side out on 6 inch (15 cm) or larger core.

Health and Safety

When handling any chemical products, read the manufacturer's container labels and the Safety Data Sheets (SDS) for important health, safety and environmental information.

Follow the link to obtain SDS sheets for 3M products on [3M.com/SDS](https://www.3m.com/SDS).

Follow the link to obtain information about substances of very high concern (SVHC).

IMPORTANT! When using any equipment, always follow the manufacturer's instructions for safe operation.

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