



Graphic Protection Options

Overlaminates and Clears for All Imaging Methods

Products

This Bulletin provides an overview of all 3M graphic protection options. All product-specific information for Standard Overlaminates is included in this Bulletin. For complete details on all other products mentioned, refer to their individual Product Bulletins. Before selecting any graphic protection, refer to the applicable 3M base film or substrate Product Bulletin for compatibility, durability or expected performance life.

Standard Overlaminates

Approved for digitally imaged or unprinted film only, except where noted by a *, which indicates it also can be used on screen printed and/or cut graphics.

High Gloss

- 3M™ Scotchcal™ High Gloss Overlaminates 639
- 3M™ Scotchcal™ High Gloss Overlaminates Film 3648*
- 3M™ Scotchcal™ High Gloss Graffiti-Resistant Overlaminates 8912
- 3M™ Interior High Gloss Overlaminates 8930

Gloss

- 3M™ Scotchcal™ Gloss Overlaminates 3640GPS*
- 3M™ Scotchcal™ Gloss Overlaminates 8518
- 3M™ Scotchcal™ Gloss Overlaminates 8580
- 3M™ Scotchcal™ Optically Clear Overlaminates 8914*

Luster

- 3M™ Scotchcal™ Luster Overlaminates 3619*
- 3M™ Scotchcal™ Luster Overlaminates 3645*
- 3M™ Scotchcal™ Luster Overlaminates 8509
- 3M™ Scotchcal™ Luster Overlaminates 8519
- 3M™ Scotchcal™ Luster Overlaminates 8524
- 3M™ Scotchcal™ Luster Overlaminates 8908

Matte & Ultra-Matte

- 3M™ Scotchcal™ Matte Overlaminates 3620*
- 3M™ Scotchcal™ Matte Overlaminates 3642GPS*
- 3M™ Scotchcal™ Matte Overlaminates 3647*
- 3M™ Scotchcal™ Matte Overlaminates 8520
- 3M™ Scotchcal™ Matte Overlaminates 8909
- 3M™ Scotchcal™ Ultra-Matte Overlaminates 8915
- 3M™ Interior Matte Overlaminates 8931

Specialty Overlaminates

- Scotchgard™ Graphic and Surface Protection Film 8991
- Scotchgard™ Removable Graphic and Surface Protection Film 8991R

Standard Clears

Approved for most types of graphics, regardless of imaging platform

Gloss

- 3M™ Screen Print Dirt Resistant Gloss Clear 1920DR
- 3M™ Screen Print Dirt Resistant Gloss Clear 2920DR
- 3M™ Scotchlite™ Screen Printing Gloss Clear 4430R
- 3M™ Screen Print Gloss Clear 9720UV
- 3M™ Screen Print Gloss Clear 9720i
- 3M™ Screen Print UV Gloss Clear 9800CL
- 3M™ Screen Print Clear VI0402

Matte

- 3M™ Screen Print Matte Clear 1930
- 3M™ Screen Print Low Gloss Clear 9730UV

Specialty Clears

- 3M™ Screen Print High Luster Protective Clear 8920 ES
- 3M™ Piezo Inkjet Protective Clear 8530

Product Applications, Descriptions and Limitations of Use

Product Number	Applications												Description	Limitations of Use		
	Fleet/Vehicle	Vehicle Wraps	Watercraft	Transit	Labels	Signage - Backlit	Signage - Backlit or Thermoformed	Signage - Non-backlit	Awning	Banner	Smooth Walls	Textured Walls and Surfaces			Windows and Glass	Floor or Sidewalk
Standard Overlamines																
639	■					■		■							Graffiti-resistant	Flat only
3619						■	■	■							Flexible, conformable, more durable	For piezo inkjet printed signs only
3620						■	■	■							Matte version of 3619	
3645													■		Slip- and scuff-resistant for floor and table graphics, some vertical graphics	Indoors only
3647													■		Use for sidewalk signs for slip-, scuff- and foot traffic-resistance	No exposure to vehicle traffic, snowplows, snow shovels, heavy equipment
3648													■		For slip-, scuff- and foot traffic-resistance for floor graphics	Indoor applications, except certain vehicle usage
8509				■	■	■		■					■		Digitally-imaged promotional graphics	Not for warranted graphics
8580		■													Unrivaled conformability and lifting resistance	Vehicle wraps only
8518	■	■	■	■	■	■	■	■		■	■				Highly conformable, provides wet paint look; resists fuel vapors	For Performance Guarantee graphics only
8519	■	■	■	■	■	■	■	■	■	■	■				Flexible and conformable; resists fuel vapors	
8520	■	■	■	■	■	■	■	■	■	■	■				Matte version of 8519	
8524												■			Use with film IJ8624 for textured surfaces; conformable with heat	Use with film 8624 of IJ8624 only
8908	■			■				■					■		Ideal for application to film 3545C; specialty graphics	No application to outdoor banner materials, vinyl film applied to fleet, truck or vehicle graphics, reflective graphic film
8909	■			■				■					■		Matte version of 8908	No heat applied to premasked graphics
8912	■			■	■			■					■		Flexible, graffiti-resistant	Dry erase marker graffiti does not remove well Not for plastics, glass or flexible substrates Not for piezo inkjet printed graphics
8914													■		Optically clear for window graphics, conformable	Use on 3M's perforated window films only
8915						■		■					■		Ultra-matte finish reduces glare	
8930								■		■					High strength acrylic adhesive	For electrostatic, Interior, flat only
8931								■		■					High strength acrylic adhesive	For electrostatic, Interior, flat only

Product Number	Applications													Description	Limitations of Use	
	Fleet/Vehicle	Vehicle Wraps	Watercraft	Transit	Labels	Signage - Backlit	Signage - Backlit or Thermoformed	Signage - Non-backlit	Awning	Banner	Smooth Walls	Textured Walls and Surfaces	Windows and Glass			Floor
Specialty Overlamines																All Products: <ul style="list-style-type: none"> • Not for automotive OEM graphics. • Not for graphics subjected to gasoline vapors, spills, such as gas pumps, automobile fuel tank ports, or top-feeding petroleum tankers • Do not print on graphic protection
3640GPS						■	■	■	■						Highest protection from UV fading, dirt, graffiti, easy clean; thermoformable on plastic substrates	Not for application to other 3M brand GPS films or Panagraphics III substrate or for graphics subjected to intentional or accidental abrasion
3642GPS						■	■	■	■						Matte version of 3640GPS	
8991	■			■	■			■				■			Superior substrate and surface protection from stains, abrasion, gouges, UV light, graffiti; easy to clean	Not for cut film applications, flexible substrates, gypsum wallboard, poor paint adhesion, graphics printed with solvent based inks, porous or unsealed surfaces. Not for vandalism or excessive product misuse that damages the substrate Not for gasoline vapors and spills that penetrate the edges of the film.
8991R	■			■	■			■				■			Removable version of 8991	Same as above, plus Not removable from printed or unprinted graphic film
Standard Clears - Screen Printed or Roller Coated Liquid Clear																
1920DR	■	■	■	■	■	■		■		■	■	■	■	■	Gloss, with dirt resistance; Good choice for frequently washed vehicles	
1930	■	■	■	■	■	■		■		■	■	■	■	■	Matte	
VI0402	■														Gloss, gasoline resistance	
2920DR	■	■		■	■			■				■		■	Gloss with dirt resistance	Use on reflective films only with ink series 2900
4430R	■	■		■	■			■				■		■	Matte	Use on reflective films only with ink series 2900
9720i	■	■	■	■	■	■		■				■		■	UV-cured gloss; Suitable for petroleum environments if staining is not a concern.	
9720UV	■	■	■	■	■	■		■				■		■	UV-cured, gloss	
9730UV	■	■	■	■	■	■		■				■		■	UV-Cured, matte	
9800CL	■	■	■	■	■	■		■				■		■	UV-cured, gloss. Suitable for petroleum environments if staining is not a concern.	Use with ink series 9800 only. Not for graphics made of multiple layers of ink and clear that must be stretched during installation.
Specialty Clears																
8920	■	■		■	■	■	■	■							Screen printed or roller coated on electrostatically imaged graphics, economical alternative to outdoor overlaminates	No exposure to gasoline spills, splashing, harsh cleaning chemicals or solvents
8530	■	■		■	■	■	■	■							Water-based clear, high luster gloss for piezo inkjet printed graphics; apply with liquid laminator	Not for full bus wraps. No exposure to Isopropyl alcohol or harsh cleaning chemicals or solvents

Application Surfaces, Physical and Performance Characteristics

Number	Application Surfaces						Physical Characteristics				Performance Characteristics <i>See Conversion Values, page 7.</i>		
	Flat	Flat with rivets	Corrugated	Simple Curves	Compound Curves	Deep Channels & Concave Surfaces	Flexible Substrates	Film Material	Cast or Non-Cast	Film Thickness (mil)	Face Finish (Gloss, High Gloss, Luster, Matte)	Liner	Lamination Temperature A 50-100°F B 50-90°F C 60-100°F

Standard Overlamines

639	■						Polyester		1	HG	Kraft paper	A	D
3619	■						Vinyl	Cast	2	L	Kraft paper	A	D
3620	■						Vinyl	Cast	2	M	Kraft paper	A	D
3645	■						Vinyl	Cast	8	L	Kraft paper	A	D
3647	■						Vinyl	Cast	19	M	Kraft paper	A	D
3648	■						Vinyl	Cast	6	HG	Kraft paper	A	D
8509	■			■			Vinyl	Non-Cast	3	L	Kraft paper	A	D
8580	■	■	■	■	■	■	Vinyl	Cast (new technology)	1	G	Kraft paper	A	D
8518	■	■	■	■	■		Vinyl	Cast	2	G	Polyester	A	D
8519	■	■	■	■	■	■	Vinyl	Cast	2	L	Kraft paper	A	D
8520	■	■	■	■	■	■	Vinyl	Cast	2	M	Kraft paper	A	D
8524	■			■			Plastic	n/a	2	L	Kraft paper	A	D
8908	■	■		■			Polyolefin	Non-Cast	2.5	L	Kraft paper	B	E
8909	■	■		■			Polyolefin	Non-Cast	2.5	M	Kraft paper	B	E
8912	■						Polyester		1	HG	Kraft paper	C	D
8914	■			■			Vinyl	Cast	1	G	Polyester	A	D
8915	■	■	■	■	■		Vinyl	Cast	2	M	Kraft paper	C	D
8930	■						Polyester	Non-Cast	2	M	Kraft paper	B	E
8931	■						Polyester	Non-Cast	4	M	Kraft paper	B	E

Specialty Overlamines

3640GPS	■			■			PVDF	n/a	1	G	Kraft paper	C	D
3642GPS	■			■			PVDF	n/a	1	M	Kraft paper	C	D
8991	■			■			Polyester	n/a	4	HG	Polyester	C	D
8991R	■			■			Polyester	n/a	4	HG	Kraft Paper	C	D

Clear Coats

Number	Application Surfaces						Physical Characteristics				
	Flat	Flat with rivets	Corrugated	Simple Curves	Compound Curves	Deep Channels & Concave Surfaces	Flexible Substrates	Face Finish (High Gloss, Gloss, Luster, Matte, Ultra Matte)	Solvent or UV	Recommended Coating Thickness	Typical Coverage per U.S. gallon <i>See Conversion Values, page 7.</i>
8920	■	■		■				HL	Solvent	3 to 6 microns	1000 -1200 feet ²
8530								HL	Water base	6 to 20 microns	800 feet ²
1920DR	■	■	■	■	■			L	Solvent	6 microns minimum	2500 feet ²
1930	■	■	■	■	■			M	Solvent	6 microns minimum	2500 feet ²
VI0402	■	■	■	■	■			L	Solvent	6 microns minimum	2500-3000 feet ²
2920DR	■	■	■	■	■			L	Solvent	6 microns	1200-1600 feet ²
4430R	■	■	■	■	■			L	Solvent	6 microns	750-800 feet ²
9720i	■	■	■	■	■			L	UV	6 to 12 microns	2500-3500 feet ²
9720UV	■	■	■	■	■			L	UV	6 to 12 microns	2500-3500 feet ²
9730UV	■	■	■	■	■			M	UV	6 to 12 microns	2500-3500 feet ²
9800CL	■	■	■	■	■	■		L	UV	10-15 microns	2500-3500 feet ²

Product

Flammability	3645	Average Critical Radiant Flux (W/cm): 1.09. Overlamine 3645 laminated to film series 162 has been tested to ASTM E 648, "Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source." The results show that the composite meets the requirement of the National Fire Protection Association, Class I Interior Floor Finish as defined in NFPA 101, "Life Safety Code."
Chemical Resistance	All	<ul style="list-style-type: none">• Resists mild alkalis, mild acids and salt• Excellent resistance to water• Resists petroleum vapors
	8991, 8991R	See Product Bulletin 8991 for complete details on the unique uses and application methods for this product.
Skid Resistance	3647	Overlamine 3647 has been tested per ASTM E303, "Standard Test Method for Measuring Frictional Properties Using the British Pendulum Tester", and meets the requirements of the skid resistance values, or British Pendulum Number (BPN), as set forth in the proposed European norms prEN1341 and prEN1342 for pedestrian surfaces. Dry Surface: BPN = 95; Wet Surface: BPN = 40.
Warranty Information	All	All graphic protection options are covered by the 3M Basic Warranty. A warranted durability period <u>may be</u> offered based on the graphic construction. Always refer to the Product Bulletin for the 3M base film or flexible substrate you are using to determine if the graphic protection option you want to use is recommended and what, if any, warranted durability period is offered. The only exception is for Scotchgard™ Graphic and Surface Protection Film 8991 and 8991R, which have warranted durability periods in Product Bulletin 8991.
Important Note for all Piezo Inkjet Printed Graphics! <i>Adequately Dry Graphics</i>	All Piezo Inkjet Graphics	Inadequate drying can result in graphic failure including curling, increased shrinkage and adhesion failure, which are not covered under warranty. Always build enough time into your process to ensure adequate drying of the graphic. Poorly dried film may become soft and stretchy, and the adhesive may become too aggressive. This can cause difficulty when applying an overlamine, rolling the graphic, and applying the film. See the ink's Instruction Bulletin for more details.
How to Apply an Overlamine	All	Except where noted, the overlamines in this Bulletin must be applied with the cold roll methods. This is also referred to as squeeze roll or power drive roll. Some products have <i>Unique Usage Details</i> as described in the following section. Refer to 3M Instruction Bulletin 4.22 for cold roll lamination procedures.
Unique Usage Details	3640GPS 3642GPS	Overlaminates 3640GPS or 3642GPS can be applied with a hand or power drive roll laminator. Do not use this on 3M™ Panagraphics™ III Wide Width Flexible Substrate or 3M™ Scotchcal™ Translucent Graphic Film Series 3632GPS. These overlamines are commonly applied using the wet (detergent and water) application method. See Instruction Bulletin 5.7 for details.
	3645 3648	Floor graphics protected with overlamine 3645 or 3648 can be scrubbed, cleaned and waxed during routine maintenance of the floor. See Instruction Bulletin 5.19.
	3647	Use for 3M sidewalk signs. Cut radiuses on any sharp corners to help prevent premature lifting of the graphic after application. Cut by hand, guillotine and cold steel rule die. Clean the graphics periodically for optimum skid resistance and appearance. See Instruction Bulletin 5.33.

Unique Usage Details, *continued*

Product

8524 Overlaminates 8524 is designed for use only with 3M™ Scotchcal™ Graphic Film IJ8624 or 8624 for Textured Surfaces.

When applying the overlaminate, use the minimum amount of pressure needed and unwind tension to obtain good results. This helps reduce the chance of the overlaminate tunneling as it is applied to the base film. If tunneling does occur, it will disappear when the graphic is applied with heat and pressure to a textured surface.

Keep the finished graphic flat and racked, if possible. If rolling is required, use the largest roll available (at least 6 inch/15 cm diameter).

**8908
8909** Apply these polyolefin overlaminates at room temperature. Both heat and tension can cause the overlaminate to curl.

Do not use this overlaminate on films that must be stretched during application. Excessive stretching causes the overlaminate to appear white.

Cut by hand or cold or hot steel rule die.

8914 Use this overlaminate for perforated window graphics. It provides optically-clear graphic protection and prevents moisture and contaminants from collecting in the base film's perforations.

Maintenance and Cleaning

All Use a cleaner such as the kind used for high-quality painted surfaces. The cleaner must be wet, non-abrasive, without strong solvents or alcohol, and have a pH value between 3.0 and 11.0 (neither strongly acidic nor strongly alkaline).

Application Tape

All Application tape may be used to add stiffness to a graphic for easier application, hold cut graphics together while applying, or to protect graphics from scratching and other damage during application. However, many graphics with an overlaminate do not require an application tape. Refer to the Product Bulletin for the base film or flexible substrate you are using for additional recommendations on the use of application tape.

The following information does not cover all construction options.

**3645
3648** Overlaminates 3645 and 3648, when used as recommended, do not require a premasking or prespacing tape for application.

3647 Overlaminates 3647 does not generally require an application tape. For die cut, prespaced graphics, 3M™ Prespacing Tape SCPS 53-X may be used.

8914 Do not use application tape for any graphics made with overlaminate 8914.

**8908
8909** Overlaminates 8908 and 8909 generally do not need an application tape, although 3M™ Premasking Tape SCPM-3 may be used.

When winding processed graphics, do not wind too tightly or the film may block.

Do not apply heat to the graphic until the premasking tape is removed and then heat only enough to soften the film; too much heat will cause the overlaminate to lose gloss. Excessive heat will cause the overlaminate to curl.

Shelf Life, Storage and Shipping

Shelf Life	Most	Total shelf life: 2 years from the date on the original box Up to 2 years unprocessed, OR process within 1 year and apply within 1 year of processing
	8930 8931	Total shelf life: 1 year from the date on the original box
Storage Temperature	8908 8909 8518	40° to 100°F (4° to 38°C)
	8509 8518 8912 8914 8915 639	40° to 86°F (4° to 30°C)
Storage Conditions	All	<ul style="list-style-type: none"> • Out of sunlight • Clean dry area • Original container • Bring the film to print room temperature before using
Shipping Finished Graphics	8524 639	Flat, or rolled printed-side-out on the largest core available (at least 6 inches/15 mm diameter). All graphics with reflective base films must use this large a core.
	All Others	Flat, or rolled printed-side-out on 5 inch (13 cm) or larger core. This helps prevent the liner and, if used, the application tape from popping off.

Conversion Values

For tables on page 4

Temperature	Length
50-100°F (10-38°C)	1000 -1200 feet ² (25-29 m ²)
50-90°F (10-32°C)	800 feet ² (19 m ²)
60-100°F (15-38°C)	2500 feet ² (59 m ²)
-65 – +225°F (54 – +107°C)	2500 feet ² (59 m ²)
-40 – +150°F (-40 – +66°C)	2500-3000 feet ² (59-83 m ²)
	1200-1600 feet ² (30-45 m ²)
	750-800 feet ² (18.4-19.5 m ²)
	2500-3500 feet ² (59-73 m ²)
	2500-3500 feet ² (59-73 m ²)
	2500-3500 feet ² (59-73 m ²)
	2500-3500 feet ² (59-83 m ²)

Health and Safety



CAUTION

When handling any chemical products, read the manufacturers' container labels and the Material Safety Data Sheets (MSDS) for important health, safety and environmental information. To obtain MSDS sheets for 3M products go to 3M.com/MSDS, or by mail or in case of an emergency, call 1-800-364-3577 or 1-651-737-6501.

When using any equipment, always follow the manufacturers' instructions for safe operation.

Air Quality Regulations

State Volatile Organic Compound (VOC) regulations may prohibit the use of certain cleaning chemicals with VOC's in graphic arts coatings and printing operations. For example, the California South Coast Air Quality Management District prohibits use of certain solvent-based solutions without a permit and other California AQMD's prohibit use of certain solutions without a permit or a regulatory exemption. Check with your State environmental authorities to determine whether use of this solution may be restricted or prohibited.

3M Related Literature

Before starting any job, be sure you have the most current Product and Instruction Bulletins.

The information in 3M Product and Instruction Bulletins is subject to change. Current Bulletins are available at 3Mgraphics.com. The techniques described in these Bulletins are required when applying a 3M warranted graphic, but are also practical recommendations when using promotional materials for non-warranted graphics. Additional Bulletins may be needed as indicated in the 3M Related Literature section of other 3M components you use.

Bulletin types: PB = Product Bulletin; PB-IB = Product & Instruction Bulletin; IB = Instruction Bulletin

Subject	Type	Bulletin No.
Base Films and Substrates Please visit our website to identify and select the additional Product and Instruction Bulletins you need for a successful application.		
Screen printing with clear 8920 ES	IB	3.15
Scotchgard™ Graphic and Surface Protection Film 8991 or 8991R	PB	8991
3M™ Screen Print Gloss Clear 1920DR, 1930 and VI0402 - Applying screen printing clear 1920DR, 1930 and VI0402	PB IB	1900 3.12
3M™ Screen Print Gloss Clear 9720UV and Matte Clear 9730UV -Applying screen printing clear 9720UV or 9730UV	PB IB	9700 3.4
3M™ Screen Print Gloss Clear 2920DR - Applying screen printing clears 2920DR	PB IB	2900 3.18
3M™ Screen Print UV Gloss Clear 9720i	PB-IB	9720i
3M™ Piezo Inkjet Protective Clear 8530	PB	8530
3M™ Scotchcal™ Luster Overlamine 8524	PB	8524
3M™ Screen Print Clear 8920 ES	PB	8920
Cold roll lamination	IB	4.22
3M Graphics Market Center Warranty Brochure	go to www.3Mgraphics.com , Warranties	

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Bulletin Change Summary

Clear 9720i was accidentally omitted from the Standard Clears listing on page 1.



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