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PROFESSIONAL AVAILABLE
NATIONWIDE INSTALLATION SERVICES



ISO 9001 : 2015
Registration No. : IC-QM-2302139



Why Choose Us

บริษัท 3เอ็ม ประเทศไทย จำกัด

ชั้น 12 อาคารเสริมมิตรทาวเวอร์
159 ถนนอโศกมนตรี
แขวงคลองเตยเหนือเขตวัฒนา
กรุงเทพฯ 10110
โทรศัพท์ : (66) 2 260 8577
โทรสาร : (66) 2 261 7535
www.3M.com/th



วันที่ 30 เมษายน 2561

เรียน ลูกค้าผู้มีเกียรติที่สนใจในผลิตภัณฑ์ AIRES VEHICLE GRAPHICS และ INKJET DIGITAL PRINTING
เรื่อง ขอรับรองคุณภาพการผลิตงานสติ๊กเกอร์กราฟิกและการติดตั้งงานสติ๊กเกอร์ประชาสัมพันธ์บนรถ

บริษัท 3เอ็ม ประเทศไทย จำกัด โดยแผนกผลิตภัณฑ์ตกแต่งและป้ายโฆษณา ขอรับรองว่า Aires Company Limited เป็น 3M Partner ที่นำเสนอสินค้าฟิล์ม 3M Scotchcal™ Inkjet Film สำหรับงานพิมพ์อิงค์เจ็ทเพื่องานสื่อโฆษณาและประชาสัมพันธ์บนรถขนส่งสินค้าต่างๆ นอกจากนี้ท่านสามารถมั่นใจถึงคุณภาพในการติดตั้ง เนื่องจากทีมติดตั้งได้รับการอบรมโดยตรงจากทาง 3เอ็ม ประเทศไทย

ซึ่งมีรายละเอียดอายุการรับประกัน ดังนี้

- | | |
|---|---------------------------------|
| ○ 3M Scotchcal Film IJ16-10 | : รับประกันถาวรไม่หลุดลอก 1 ปี |
| ○ 3M Scotchcal Film IJ16-10 + 8008G | : รับประกัน 1 ปี (อายุงาน 2 ปี) |
| ○ 3M Scotchcal Film IJ1220V2 + 8008G | : รับประกัน 2 ปี (อายุงาน 3 ปี) |
| ○ 3M Scotchcal Film IJ8624 + IJ40-114 หรือ 8509 | : รับประกัน 3 ปี (อายุงาน 4 ปี) |
| ○ 3M Scotchcal Film IJ180mC-10 + 8518 หรือ 3619 | : รับประกัน 5 ปี (อายุงาน 6 ปี) |
| ○ 3M Scotchcal Film IJ680CR-10 + 3619 | : รับประกัน 4 ปี (อายุงาน 6 ปี) |

หมายเหตุ

- เงื่อนไขการรับประกันอยู่ภายใต้ขอบเขตจากคุณภาพวัสดุที่กำหนดไว้จาก Aires Company Limited
- การรับประกันจะทำการเปลี่ยนชิ้นงานให้ใหม่ ในแต่ละชิ้นงานแยก หากพิสูจน์ได้ว่าเป็นปัญหาที่เกิดจากคุณภาพวัสดุและการติดตั้งสติ๊กเกอร์
- เรื่องการไม่หลุดลอกและคุณสมบัติการลอกออกได้ของเนื้อกาว (Removable) ซึ่งจะทั้งคราบกาวไม่เกิน 30% ภายในระยะเวลาที่ให้การรับประกัน

ทางบริษัทฯ หวังเป็นอย่างยิ่งว่าจะได้รับโอกาสในการให้บริการท่านและได้เป็นส่วนหนึ่งในความสำเร็จของท่านตลอดไป

ขอแสดงความนับถือ

(สุทธิ ไพบูลย์สิทธิวงศ์)

Senior Sales Supervisor

แผนกผลิตภัณฑ์ตกแต่งและป้ายโฆษณา

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WTTS-034/2561

เอกสารการรับรองคุณภาพผลิตภัณฑ์สะท้อนแสง 3M

โดยหนังสือฉบับนี้ ข้าพเจ้า บริษัท 3เอ็ม ประเทศไทย จำกัด ซึ่งเป็นบริษัทในเครือของบริษัทมินเนโซต้า ไมนิ่ง แอนด์ แมนูแฟเจอริง แห่งประเทศสหรัฐอเมริกา ขอรับรองคุณภาพผลิตภัณฑ์ 3M คือ

ชนิดวัสดุและเงื่อนไขการรับรอง

ชนิดแถบสะท้อนแสง สก็อตไลท์ (3M Scotchlite™ Diamond Grade Conspicuity Sheeting) Series 983
No. 983-72 Red Color Size 2" x 50M , 983-71 Yellow Color Size 2" x 50M และ 983-10 White Color Size 2"x50M

เงื่อนไขการรับประกัน

- ค่าสัมประสิทธิ์การสะท้อนแสง

รับประกันอายุการใช้งาน 7 ปี ซึ่งค่าสัมประสิทธิ์การสะท้อนแสงนับตั้งแต่วันที่ติดตั้งบนยานพาหนะ จนถึงวันสุดท้ายของปีที่ 7 ไม่น้อยกว่าค่าในตาราง และผ่านข้อกำหนดตามประกาศของกรมการขนส่งทางบก หมวดแผ่นสะท้อนแสง

ส่วนของแถบสะท้อนแสง	ค่าสัมประสิทธิ์การสะท้อนแสงที่ มุมตั้งฉาก/มุมที่แสงตกกระทบ 0.2°-4° (Candelas/Lux/Sqm)
สีแดง	60
สีขาว	250
สีเหลือง	160

เพื่อ บริษัท ไอรอส จำกัด ที่อยู่ 147 ซอยพระรามเก้า 41 ถนนเสรี 9 แขวงสวนหลวง เขตสวนหลวง กทม 10250
ให้นำมาส่งงานกับ บริษัท บิทาเกิน จำกัด

ขอแสดงความนับถือ

บริษัท 3เอ็ม ประเทศไทย จำกัด
3M THAILAND LIMITED



(นางจิรวรรณ ชีระมิ่งคานนท์)

ผู้จัดการแผนก

แผนกผลิตภัณฑ์ระบบความปลอดภัยด้านการจราจร



There is a lifetime warranty.



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Reachable in every area
the vehicle travels.



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Expenses are lower than
billboards or other media,
with advertising available as
long as the vehicle is running.



Long service life
One-time investment that
lasts 1-5 years.



Protects car paint
from scratches and sunlight.



**Choose from
various models**
You can select the grade
of durability according
to your needs.

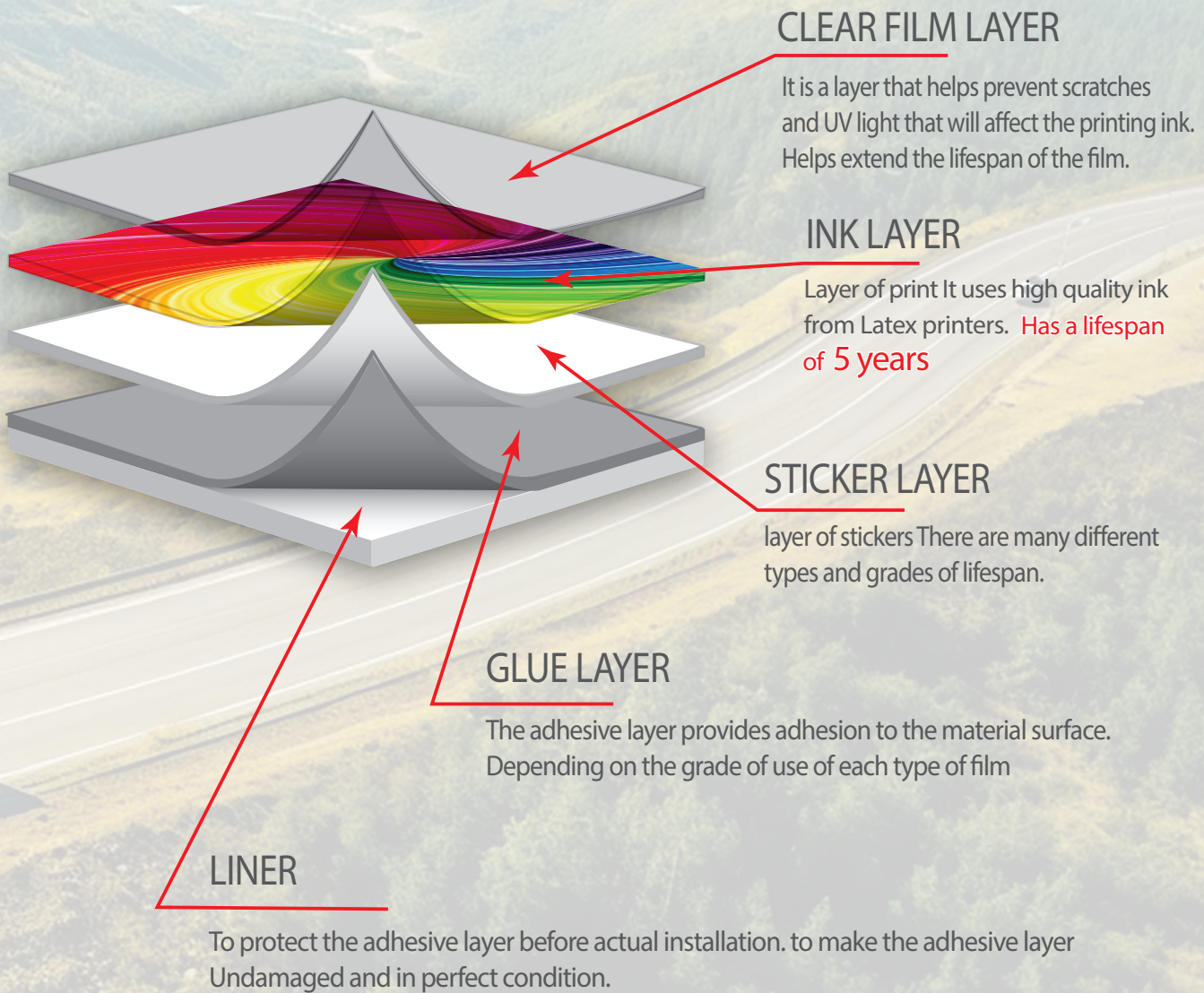


FILM STRUCTURE

The structure of a film can vary widely depending on its intended use, manufacturing process, and desired properties. For example, a multi-layered film designed for packaging purposes may have distinct layers with specific barrier properties to protect the contents from moisture, oxygen, or light. On the other hand, a thin film used for decorative purposes may have a simpler structure with a single layer and a glossy or matte finish.

Film structure plays a crucial role in determining the film's mechanical strength, flexibility, transparency, adhesion, and resistance to environmental factors such as heat, humidity, and UV radiation. Understanding the film structure is essential for optimizing its performance and ensuring it meets the requirements of its intended application.

In general, the film structure consists of



FILM TECHNOLOGY

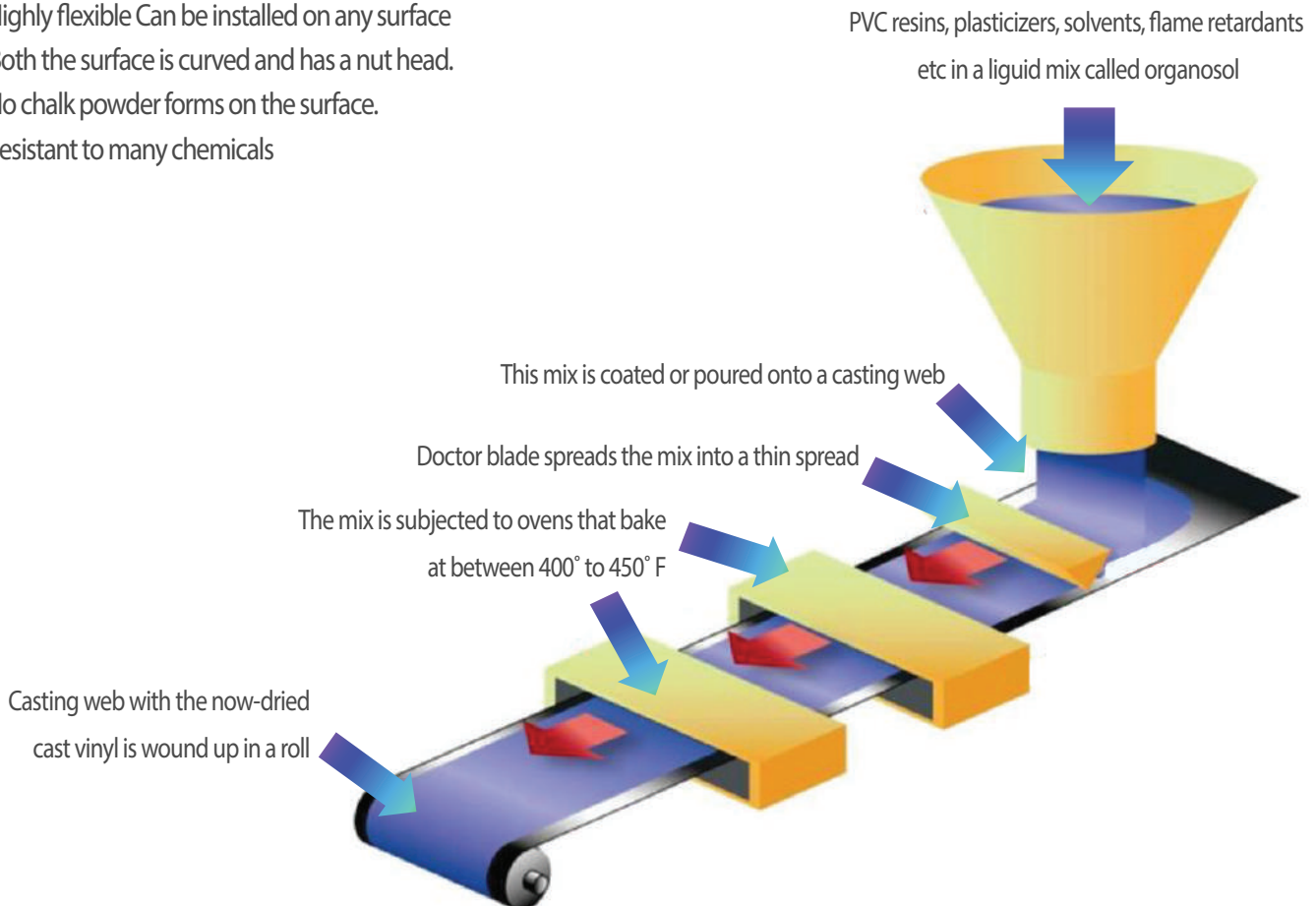
CASTED FILM

Casting film refers to a manufacturing process used to produce thin, flexible plastic films. In this process, molten plastic is poured onto a polished, rotating drum or onto a flat surface, where it spreads out and cools rapidly to form a thin, continuous film. The resulting film can vary in thickness and properties depending on the specific requirements of the application. Casting film technology is commonly used in various industries for packaging, lamination, and other applications requiring flexible and durable plastic films.

Cost-Effectiveness Compared to other film production methods (like blown film), casting can be more economical for certain applications, Customization Ability to modify properties like thickness, clarity, and barrier performance to suit specific needs, Environmental Resistance Certain casted films can be treated to resist UV light, moisture, and chemicals.

Characteristics

- Only 50 microns thick
- low shrinkage
- Durable and has a long service life.
- Highly flexible Can be installed on any surface
Both the surface is curved and has a nut head.
- No chalk powder forms on the surface.
- Resistant to many chemicals



CALENDERED FILM

Calendered film refers to a type of film that is produced through a calendaring process. Calendaring is a manufacturing method in which a material, often plastic, is passed between heated rollers to create a thin, flat sheet with uniform thickness and smooth surfaces.

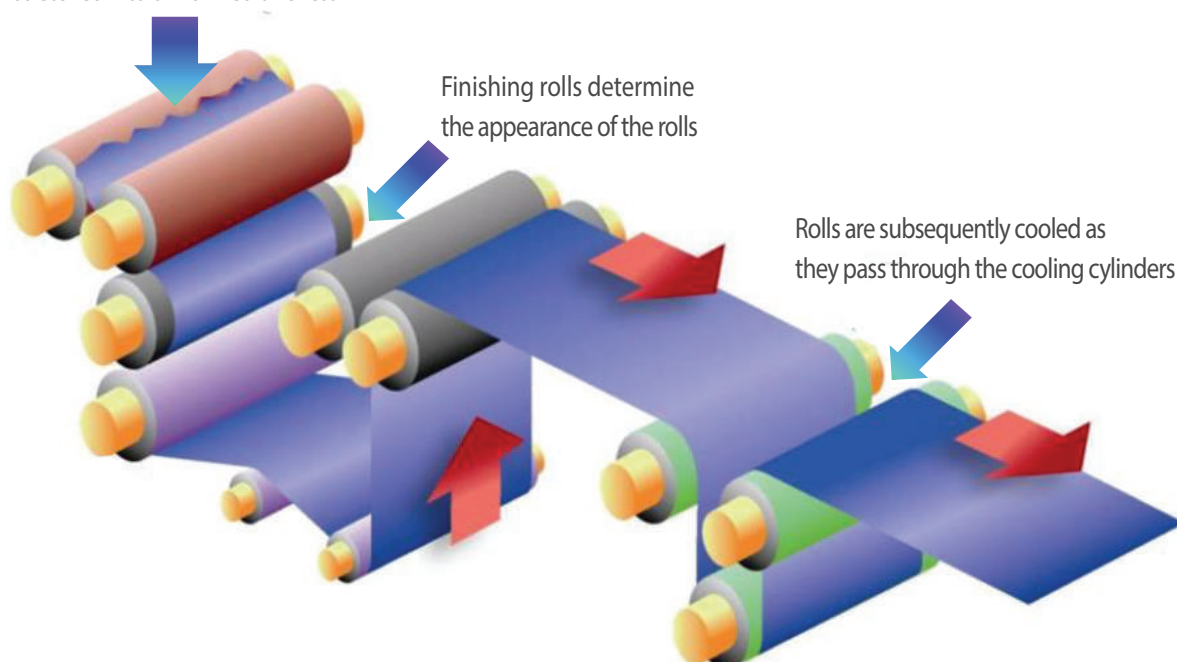
During the calendaring process, the material is typically heated and compressed between the rollers to achieve the desired thickness and surface finish. The rollers may have different configurations and textures to impart specific properties to the film, such as glossiness or texture.

Calendered films are commonly used in a variety of applications, including packaging, printing, laminating, and labeling. They can be made from different types of plastics, such as polyethylene, polypropylene, or PVC, and they come in various thicknesses and finishes to meet specific requirements.

Characteristics

- Thickness 75-100 microns
- High shrinkage
- Has a short to medium lifespan
- Can only be installed on smooth, slightly curved surfaces.
- Resistant to some chemicals

Solid particles are mixed, heated and kneaded into a molten state. Film is pulled and stretched into uniform thickness



TYPE FILM

Film type is divided into 4 types according to ability. in the conduction of light and its use

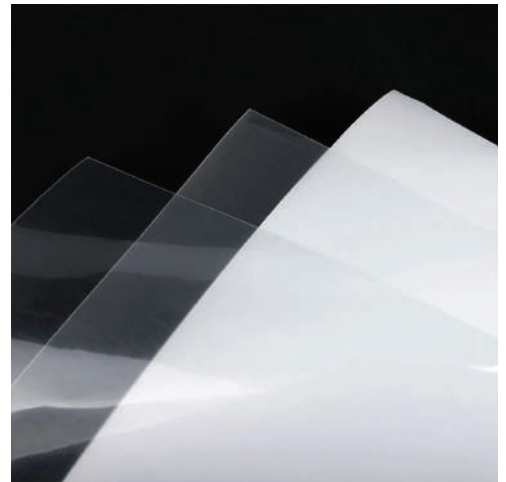
OPAQUE FILM

Most of the time, the glue is an opaque color, such as gray. The rate of light penetrating the film is low. Makes the color of the material not mix with the color of the printing ink. Commonly used for general applications such as cars and buildings.



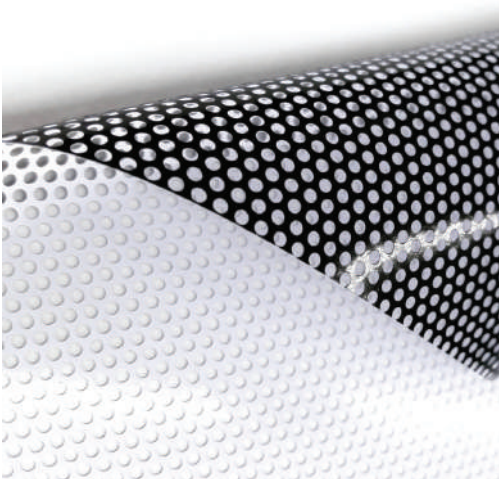
TRANSLUCENT FILM

The level of light penetration through the film remains consistently high. This type of film is widely utilized in backlighting applications or for electrical cabinets.



TRANSPARENT FILM

The visibility of objects through the film relies on the level of turbidity in both the film and adhesive. This type of film is commonly employed in glass installation or as a laminating film.



SEE THROUGH FILM

Light can permeate through the openings in the film, often found in applications such as car or building windows where visibility to the outside is desired.

TYPE GLUE

Types of glue are divided into 2 types according to use.

REMOVABLE ADHESIVE

Used for short- and medium-term installations. Leaves no more than 30% glue residue when peeled off.

(Does not damage the surface of the material)



PERMARNANT ADHESIVE

Used for long-term installation or work that requires excellent adhesion Leaves glue residue when peeled off.

(In some cases, it may damage the surface of the material)



UV EFFECT

Issues related to UV light impacting stickers are categorized into three distinct types as outlined below



EFFECT TO WHITE FILM

Influence of UV light on the white film can fluctuate. Depending on the type of film and its chemical composition, exposure to UV light generally can cause white film to deteriorate and discolor over time. This may result in white, yellow or lightening of the color. Sometimes burns may occur. This affects both appearance and functionality.



EFFECT TO CLEAR FILM

UV light can have detrimental effects on clear film, including yellowing, brittleness, degradation, and loss of clarity. Over time, exposure to UV radiation can cause clear film to develop a yellowish tint, become brittle and prone to cracking, degrade molecularly, and lose its transparency, appearing cloudy or hazy instead.



EFFECT TO INK

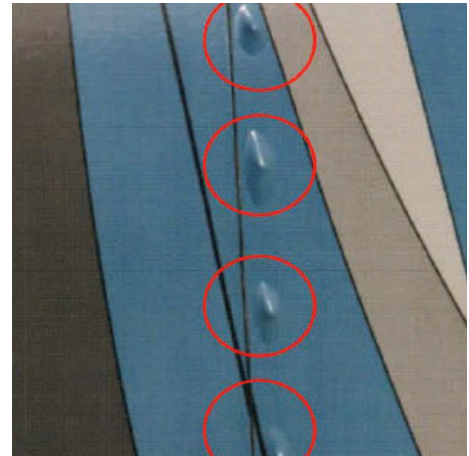
UV (ultraviolet) light has significant effects on ink printing, including rapid curing, color fading, ink degradation, and substrate interaction. UV curing is a common technique where UV light dries and cures the ink quickly, resulting in a durable finish. However, prolonged UV exposure can lead to color fading as UV radiation breaks down ink pigments' chemical bonds. Ink degradation may occur over time due to UV exposure, affecting properties like adhesion and flexibility and diminishing print quality.

FILM THICKNESS

Selecting a film whose thickness is not appropriate for the surface. It may cause problems with installation, causing damage to the work.

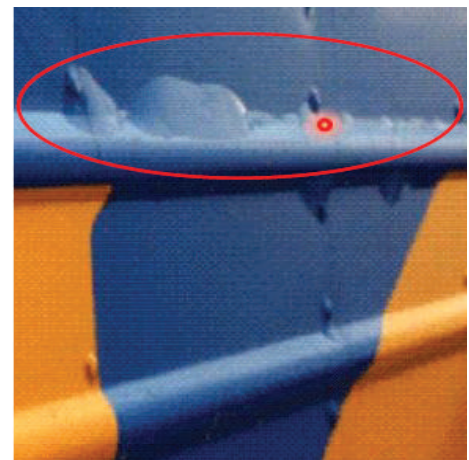
EFFECT TO INSTALL

The thickness of the film used does not match the type of installation. May cause damage.



FILM DOES NOT ADHERE TO THE SURFACE

When the film thickness exceeds the appropriate level, it can hinder the film's ability to adhere effectively to the surface of the material, resulting in poor bonding and potential detachment.



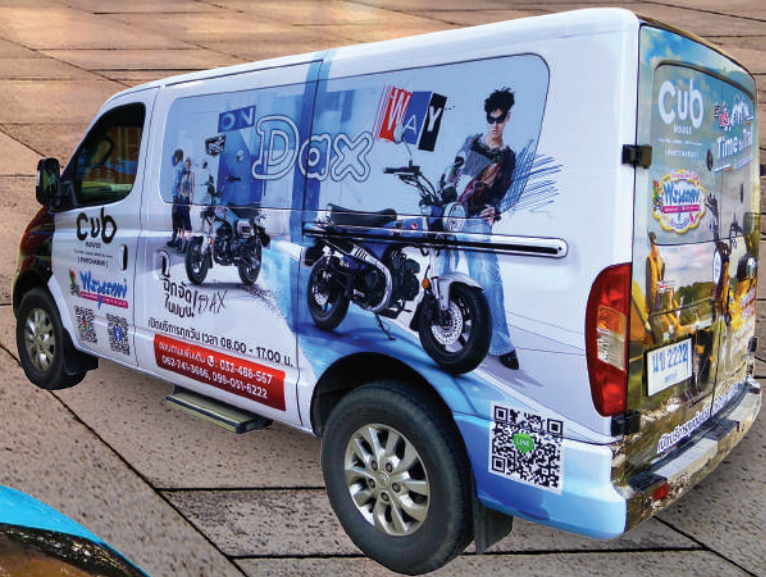
FILM BOUNCES OFF THE SURFACE

A film that is excessively thick may exhibit a bouncing or recoiling effect upon contact with the surface, making it difficult for the film to adhere adequately.



INSTALLATION FORMAT FULL WRAP





INSTALLATION FORMAT ONLY CARGO CONTAINER





INSTALLATION FORMAT DIE-CUT INSTALLATION







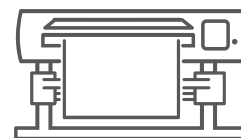
FILM FUNCTION

Choosing the right sticker type for adhering to a particular surface is crucial for the sticker's longevity. Opting for an unsuitable sticker can significantly diminish its lifespan and potentially lead to issues.

Hence, we offer a diverse range of high-quality stickers tailored to different purposes, ensuring you find the perfect match for your specific needs.

Service Life (Years)	Print Film	Lumination Film	Warranty	Warranty Scope	
			(Years)	Film	Ink
1-2	3M Scotchcal IJ16-10	-	1	✓	-
2-3	3M Scotchcal IJ16-10	3M Scotchcal 4156	1	✓	✓
4-5	3M Scotchcal IJ8624	3M Scotchcal IJ40-114/8509	3	✓	✓
4-5	3M Envision 48/ 48C	3M Envision 8048G	3	✓	✓
1-2	3M Scotchcal IJ1229	-	1	✓	-
6-7	3M Scotchcal IJ680cr-10	3M Scotchcal 3619	4	✓	✓
3	3M Scotchcal SC30/S32	-	-	-	-
5	3M Scotchcal ISC50	-	-	-	-

Product Bulletin IJ16-10



Product Description

- For Solvent, Eco-Solvent UV and Latex Inkjet Printing and Screen Printing
- 3.5-4.0 mils monomeric calendared vinyl film

Product

- Available in gloss and matte finishes
- Pressure-sensitive adhesive
- Expected Performance Life of 12 months (unwarranted period for unprinted film with no graphic protection, applied to a flat, vertical, outdoor surface)

Application

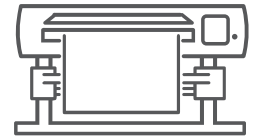
Characteristic	Value
Finished Graphic Application Recommendation	Surface type : Smooth, flat and simple curved surfaces Substrate type : Metal, rigid plastic and painted surfaces Application temperature : 40° – 100°F (4° – 38°C) air and substrate Application method : Dry
Temperature Range after Application	5°C to +38°C (40°F to +100°F) (not for extended periods of time at the extremes)
Graphic Removal	Permanent

Factors that Affect Graphic Performance Life

The actual performance life of a graphic is affected by :

- The combinations of graphics materials used.
- Complete ink drying or curing.
- Selection, condition and preparation of the substrate.
- Surface texture.
- Application methods.
- Angle and direction of sun exposure.
- Environmental conditions.
- Cleaning or maintenance methods.

Product Bulletin IJ8624



Product Description

Textured Surfaces IJ8624 conforms to moderately textured surfaces like concrete block, brick, industrial stucco and tile similar to those commonly found in sports arena, stadiums, restaurants, retail and other public venues.

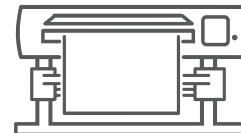
Product

Inkjet printing IJ8624 white, opaque, glossy, removable adhesive.

Application

Characteristic	Value
Material	cast vinyl
Surface finish	glossy
Thickness (film)	50 µm (0.05 mm)
Adhesive type	solvent acrylic, pressure-sensitive
Adhesive appearance	grey
Liner	double-sided Polyethylene coated paper
Adhesion	see notice below FTM 1: 180° peel, substrate: glass; cond : 24 h 23°C/50%RH
Application method	dry only!
Applied shrinkage	< 0.4 mm FTM 14
Application temperature <small>(minimum air and substrate)</small>	+4°C for flat surfaces +10°C for curved to corrugated surfaces with and without rivets
Surface type	flat to simple curved
Substrate type	concrete block, brick, industrial stucco and tile
Graphic removal	Removable without heat and/or chemicals from supported substrates.
Notice!	Varies with type of substrate; using heat enhances removal of film ; may leave adhesive residue; may remove some paint or finish ; may damage mortar.

Product Bulletin Envision™ 48/48C



Product Description

Envision™ Print Film Series 48 and 48C offer great versatility for indoor and outdoor signs and fleet graphics for inkjet printing with latex, solvent and UV inks, as well as UV screen printing.

3M™ Controltac™ minimizes the initial contact area of the adhesive and allows the applicator to reposition the film during application. This allows easier installation of large format graphics in a wide temperature range. Product variants with Comply™ adhesive also have air release channels for fast and easy, bubble-free graphic installations.

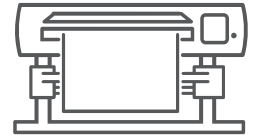
Product

Inkjet printing	48-20	white, opaque, matte, permanent adhesive (grey).
	48-20R	white, opaque, matte, removable adhesive (grey).
	48C-20	white, opaque, matte, permanent adhesive (grey) with Controltac™ and Comply™.
	48C-20R	white, opaque, matte, removable adhesive (grey) with Controltac™ and Comply™.

Application

Characteristic	Value
Material	non-PVC polymer
Surface finish	matte
Thickness (film)	80 µm (0.08 mm)
Adhesive type	acrylic, pressure-sensitive In addition: product variants with Comply™ adhesive have air release channels
Adhesive appearance	grey
Liner	back-sided Polyethylene coated paper
Adhesion	16 N/25 mm FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH removable films 6 N/25 mm of series
Application method	wet or dry
Applied shrinkage	< 0.4 mm FTM 14
Application temperature (minimum air and substrate)	+10°C for flat surfaces
Service temperature (after application)	50°C to +90°C (not for extended periods of time at the extremes)
Surface type	flat to simple curved
Substrate type	aluminum, glass, PMMA, PC*, ABS, paint *Might require drying with heat before use
Graphic removal	Removable without heat and/or chemicals from supported substrates

Product Bulletin IJ1229 (see through)



Product Description

Perforated Window Graphic Film is white on the image side and black on the adhesive side. This allows printing graphics to be seen on one side and still allows viewing through the window from the other side.

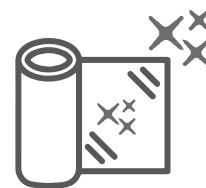
Product

Inkjet printing IJ1229 white, perforated, glossy, removable adhesive.

Application

Characteristic	Value
Material	calendered vinyl (monomeric)
Surface finish	glossy
Thickness (film)	120 µm (0.12 mm)
Adhesive type	waterbased acrylic: pressure-sensitive
Adhesive appearance	black
Liner	double-sided Polyethylene coated paper
Adhesion	approx. 6 N/25 mm FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH
Application method	dry only!
Applied shrinkage	< 0.6 mm FTM 14
Application temperature (minimum air and substrate)	+12°C for flat surfaces
Service temperature (after application)	-25°C to +65°C (not for extended periods of time at the extremes)
Surface type	flat
Substrate type	glass, PMMA, PC*, PETG*, ABS *Might require drying with heat before use
Graphic removal	Removable without heat and/or chemicals from supported substrates

Product Bulletin Reflective IJ680CR



Product Description

- 7-mil flexible, enclosed lens, retroreflective film
- Available in white only
- Similar daytime and nighttime appearance that retains most of its reflectivity when wet
- Excellent angularity
- Pressure-activated adhesive for easy sliding and tacking
- Removable with heat and/or chemicals
- Designed for excellent cutting and weeding with computer sign cutting equipment
- Air release channels for fast and easy, bubble-free graphic installation
- Unprocessed film resists fuel vapors or occasional spills.

Application

Characteristic	Value						
Material	Vinyl						
Thickness (film)	With adhesive: 7 to 8 mils (0.18 to 0.20 mm)						
Film colors & typical retroreflection	<table border="1"> <thead> <tr> <th>Film Number</th> <th>Color Name</th> <th>Typical Coefficient of Retroreflection</th> </tr> </thead> <tbody> <tr> <td>IJ680CR-10</td> <td>White</td> <td>100</td> </tr> </tbody> </table>	Film Number	Color Name	Typical Coefficient of Retroreflection	IJ680CR-10	White	100
Film Number	Color Name	Typical Coefficient of Retroreflection					
IJ680CR-10	White	100					
Retroreflection Definition	The typical coefficient of retroreflection defined is measured at a -4° entrance angle and a 0.2° observation angle. It is expressed in candlepower per foot-candle per square foot (candela/lux/square meter) per ASTM E810. The entrance angle is formed by a light beam striking the surface at a point and a line that is perpendicular to the surface at the same point. An observation angle is formed by the light beam striking the reflective surface and returning to the observer. From 800 feet (249 meters), a motorist normally views a graphic at a 0.2° angle.						
Adhesive appearance	Clear with silver underneath						
Liner	Polyethylene-coated paper						
Safety Standards	See Section 13 for ASTM, NFPA® and AAR information						
Adhesive type	Pressure-activated, slideable, with air release channels						
Surface type	Flat, with or without rivets; moderate curves, corrugations						
Substrate type	Aluminum, FRP, paint						
Application method	Dry						
Temperature range after application	-30° – +200°F (-34° – +93°C)						
Graphic removal	Removable with heat and/or chemicals from most substrates within specified warranty period						

Product Bulletin 4156 / 4157



Product Description

- Clear PVC film with transparent adhesive suitable for graphic protection against ultraviolet rays.
- Stain resistant for easy maintenance.
- Suitable for use on flat or simple curve surfaces.
- 4156 Clear Gloss Overlaminates
- 4157 Clear Matte Overlaminates
- Expected performance life of 3 years.

Product

- Overlaminates for intermediate graphics
- Transit
- Labels
- Smooth Walls
- Windows and Glass

Application

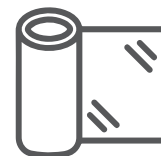
Characteristic	Value
Material	Vinyl
Surface finish	Gloss & Matte
Thickness (film)	110µm
Adhesive type	Pressure sensitive Acrylic solvent-based,
Adhesive appearance	-
Liner	Silicone coated paper liner
Application Temperature	>15°C
Chemical Resistance	Resists mild alkalis, mild acids and salts Excellent resistance to water (does not include immersion) Resists occasional fuel spills

Factors that Affect Graphic Performance Life

The actual performance life of a graphic is affected by :

- the combinations of graphics materials used.
- complete ink drying or curing.
- selection, condition and preparation of the substrate.
- surface texture.
- application methods.
- angle and direction of sun exposure.
- environmental conditions.
- cleaning or maintenance methods.

Product Bulletin IJ40-114



Product Description

These polymeric calendered films offer great versatility making them perfect for indoor and outdoor signs and fleet graphics. Product variants with Comply™ adhesive also have air release channels for fast and easy, bubble-free graphic installations.

Product

IJ40-114 transparent, glossy, permanent adhesive.

Application

Characteristic	Value
Material	calendered vinyl (polymeric)
Surface finish	Gloss
Thickness (film)	75 µm (0.075 mm)
Adhesive type	solvent acrylic, pressure-sensitive In addition: product variants with Comply™ adhesive have air release channels
Adhesive appearance	-
Liner	back-sided Polyethylene coated paper
Adhesion	approx. 16 N/25 mm FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH removable films approx. 6 N/25 mm of series
Application method	wet or dry FTM 14
Applied shrinkage	< 0.4 mm for flat surfaces
Application temperature (minimum air and substrate)	+10°C
Service temperature (after application)	50°C to +90°C
Surface type	flat to simple curved
Substrate type	aluminum, glass, PMMA, PC*, ABS, paint *Might require drying with heat before use
Graphic removal	Removable without heat and/or chemicals from supported substrates

Product Bulletin Envision™ 8048



Product Description

- Suitable for application surfaces that are flat or have simple curves
- 8048G - Gloss non-PVC
- 8050M - Matte non-PVC
- Less prone to scratching
- Superior UV protection
- Expected performance life - 4 years (unwarranted period applied to a flat, vertical, outdoor surface)

Product

- Intermediate graphics
- Transit
- Labels
- Signage
- Smooth Walls
- Windows and Glass

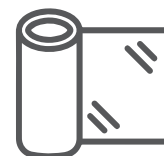
Application

Characteristic	Value
Material	Non-PVC
Surface finish	Gloss & Matte
Thickness (film)	2 mils
Liner	Kraft paper
Lamination Temperature	50 to 100°F (10 to +38°C)
In Use Temperature Range	-65 to +225°F (-54 to +107°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

Factors that Affect Graphic Performance Life

The actual performance life of a graphic is affected by :

- the combinations of graphics materials used.
- complete ink drying or curing.
- selection, condition and preparation of the substrate.
- surface texture.
- application methods.
- angle and direction of sun exposure.
- environmental conditions.
- cleaning or maintenance methods.



Product Bulletin 3619

Product Description

- Flexible, conformable, and more durable
- Thermoformable
- Expected performance life of 6 years (unwarranted period applied to a flat, vertical, outdoor surface)

Product

- Signage

Application

Characteristic	Value
Material	Viny
Surface finish	glossy
Thickness (film)	2 mils
Liner	Kraft paper
Lamination Temperature	50 to 100°F (10 to +32°C)
In Use Temperature Range	65 to +150°F (-54 to +66°C)
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

Factors that Affect Graphic Performance Life

The actual performance life of a graphic is affected by :

- the combinations of graphics materials used.
- complete ink drying or curing.
- selection, condition and preparation of the substrate.
- surface texture.
- application methods.
- angle and direction of sun exposure.
- environmental conditions.
- cleaning or maintenance methods.



Product Bulletin Series 30

Product Description

These monomeric calendered films are a range of 39 glossy and 35 matte colored films that have been specially developed to be knife cut on electronic systems.

Product

Electrocut 30-X X = color code, opaque, glossy and matte, removable adhesive. Wide selection out of large color range.

Application

Characteristic	Value
Material	calendered vinyl (monomeric)
Surface finish	glossy and matte (see product line)
Thickness (film)	70 µm (0.07 mm)
Adhesive type	waterbased acrylic: pressure-sensitive
Adhesive appearance	clear
Liner	Kraft paper
Adhesion	approx. 7 N/25 mm FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH
Application method	dry only!
Applied shrinkage	< 0.6 mm FTM 14
Application temperature	+10°C minimum (air and substrate)
Service temperature (after application)	-40°C to +80°C
Surface type	flat
Substrate type	aluminum, glass, PMMA, PC*, ABS, paint *Might require drying with heat before use
Graphic removal	Removable without heat and/or chemicals from supported substrates



Product Bulletin Series 32

Product Description

- Opaque calendered 4.0 mil vinyl film for Electro Cut only
- Permanent clear pressure sensitive adhesive removable with heat.
- Available in a wide variety of colours with gloss and matte finish.
- Ideal for permanent graphics with up to 2 years of expected durability in indoor and outdoor applications.

Product

- Pre-spaced electronically-cut graphics.
- Banners.
- Commercial and industrial signage including emblems, vehicle graphics, labels and striping
- General informational signage

Application

Characteristic	Value
Material	calendered vinyl
Surface finish	37 Gloss and 24 Matte Colours
Thickness (film)	Without adhesive: 90µm With adhesive: 116-128 µm
Adhesive type	Pressure sensitive Acrylic clear, solvent-based
Adhesive appearance	clear
Liner	Paper 120g/m ²
Chemical Resistance	Resists mild acids, mild alkalis, and salts Excellent resistance to water (does not include immersion)
Finished graphic application recommendations	Surface type: Flat, simple curves surfaces, without rivets Substrate type: Flexible signage, glass, metal, acrylic, aluminum, and painted surfaces Application temperature: air and substrate 13° to 38°C (50° to 100°F)
Application method	dry or wet
Finished graphic exposure temperature	-40° to +80°C (-40° to +176°F)
Graphic removal	Removable without heat



Product Bulletin Series 50

Product Description

These polymeric calendered films are a range of colored films that have been specially developed to be knife cut on electronic systems. Furthermore two screen printable versions are available.

Product

Electrocut	50-X	X = color code, opaque, glossy, permanent adhesive. Wide selection out of large color range.
Screen printing	SP50-10 SP50-11 SP50-10R SP50-11R	white, opaque, glossy, permanent adhesive (clear). transparent, glossy, permanent adhesive (clear). white, opaque, glossy, removable adhesive (clear) transparent, glossy, removable adhesive (clear).

Application

Characteristic	Value
Material	calendered vinyl (polymeric)
Surface finish	glossy
Thickness (film)	75 µm (0.075 mm)
Adhesive type	solvent acrylic; pressure-sensitive
Adhesive appearance	clear
Liner	Kraft paper removable films of series back-sided Polyethylene coated paper screen print products back-sided Polyethylene coated paper
Adhesion	approx. 14 N/25 mm FTM 1: 180° peel, substrate: glass; cond: 24 h 23°C/50%RH removable films of series approx. 6 N/25 mm
Application method	wet or dry
Applied shrinkage	< 0.4 mm FTM 14
Application temperature	+8°C minimum (air and substrate)
Service temperature (after application)	-40°C to +80°C
Surface type	flat to simple curved
Substrate type	aluminum, glass, PMMA, PC*, ABS, paint *Might require drying with heat before use
Graphic removal	Removable without heat and/or chemicals from supported substrates

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ONE
ArC

AIRES COMPANY LIMITED

14 Soi Krungthep Kritha 37 Yaek 1

Khwaeng Thap Chang

Khet Saphan Sung

Bangkok, Thailand 10250

Office : +66 (0) 2 077 7869

Mobile : +66 (0) 92 618 2666

Line : @aires9

Email: pano@aires.co.th

www.aires.co.th | www.wraparena.com | www.arccorps.com

