



# Digital Printing Materials

**ORAJET**®  
**ORAGUARD**®  
**ORACAL**®  
**ORALITE**®  
**ORABOND**®

Engineered to Perform Better™



## ORAFOL's Headquarters



Located just outside of Berlin in the heart of Europe, the ORAFOL Europe GmbH headquarters is the hub of the organisation's culture of leadership and excellence.



# Index

## Digital Printing Materials

<b>Page</b>	<b>List of contents</b>
4-11	Films for solvent based inkjet printing
12-13	Films for thermotransfer printing
12-13	Materials for water-based inkjet printing
14-15	Laminating Films
16-17	Mounting Films
19	Notes on Processing and Handling

# Films for solvent based inkjet printing

Description					
Product	Front Materials	Colours / surfaces Gloss (G) Matt (M) Semi-gloss (SG)	Adhesive	Covering Material	Areas of use
<b>ORAJET® 3981RA</b>	Premium polyurethane film, 50 micron	White (G)	Solvent polyacrylate, repositionable, permanent, grey	PE-coated double-sided silicone paper, 143 g/m <sup>2</sup>	For long-term polyurethane graphic applications with the highest degree of brilliancy and durability, e.g. complete car wrapping. Recommended in combination with polyurethane laminating film ORAGUARD® 289F.
<b>ORAJET® 3951</b>	Premium cast PVC film 55 micron	White (G)	Solvent polyacrylate, repositionable, permanent, grey	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	For long-term displays with the highest degree of brilliancy and durability in outdoor applications, e.g. complete car wrapping.
		Transparent (G)	Transparent		
<b>ORAJET® 3951RA</b>	Premium cast PVC film 55 micron	White (G)	Solvent polyacrylate, repositionable, permanent, grey	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	For long-term displays with the highest degree of brilliancy and durability in outdoor applications, e.g. complete car wrapping. The <i>RapidAir®</i> technology enables easy and rapid application without air inclusion, especially of large-sized graphics or decals.
<b>ORAJET® 3951HT</b>	Premium cast PVC film with very high tack 55 micron	White (G)	Solvent polyacrylate, permanent, with high initial tack and final adhesion, grey	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	For long-term graphic applications, markings and decorations with the highest degree of brilliancy and durability in extreme outdoor conditions and on "hard-to-stick" substrates.
		Transparent (G)	Transparent		
<b>ORAJET® 3952F</b>	Cast PVC film 50 micron	Highly transparent (G)	Solvent polyacrylate, semi-permanent, transparent	Silicone coated polyester film, 75 µm	For ultra clear and colour intensive printed glass decorations both indoor and outdoor.
<b>ORAJET® 3959</b>	Premium Cast PVC film, 55 micron, gasoline-resistant	White (G)	Solvent polyacrylate, repositionable, permanent	PE-coated silicone paper, 143 g/m <sup>2</sup>	In combination with the gasoline-resistant laminating film ORAGUARD® 259 suited for long-term graphic applications and promotions on petrol stations, gas tanks, on tankers or trucks.
<b>ORAJET® 3751</b>	Polymeric PVC film 60 micron	White (G)	Solvent polyacrylate, repositionable, permanent, grey	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	For long-term displays with the highest degree of brilliancy and durability in outdoor applications, e.g. vehicle lettering.
		Transparent (G)	Transparent		
<b>ORAJET® 3550</b>	Polymeric PVC film 70 micron	White (G)	Solvent polyacrylate, repositionable, permanent, transparent	PE-coated double-sided silicone paper, 143 g/m <sup>2</sup>	For long-term displays with highest degree of brilliancy and durability in outdoor applications, e.g. vehicle lettering.
<b>ORAJET® 3551</b>	Polymeric PVC film 70 micron	White (G), (M)	Solvent polyacrylate repositionable, permanent, grey	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	For long-term displays with the highest degree of brilliancy and durability in outdoor applications, e.g. vehicle lettering.
		Transparent (G), (M)	Transparent		
<b>ORAJET® 3551RA</b>	Polymeric PVC film 70 micron	White (G), (M)	Solvent polyacrylate, repositionable, permanent, grey	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	For long-term displays with the highest degree of brilliancy and durability in outdoor applications, e.g. vehicle lettering. The <i>RapidAir®</i> technology enables easy and rapid application without air inclusion, especially of large-sized graphics or decals. Suitable for even or slightly curved surfaces.
<b>ORAJET® 3551DT</b>	Polymeric PVC film 70 micron	White (G), (M)	Solvent polyacrylate, permanent, transparent	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	For long-term displays with the highest degree of brilliancy and durability in outdoor applications, e.g. vehicle lettering. Good processing properties at low temperatures.
		Transparent (G)			
<b>ORAJET® 3591</b>	Polymeric PVC film 70 micron	White (G)	Solvent polyacrylate, removable, grey	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	For long-term displays with the highest degree of brilliancy and durability in outdoor applications, e.g. vehicle lettering.
		Transparent (G)	Transparent		
<b>ORAJET® 3106SG</b> Caravan Film	Polymeric PVC film, 100 micron	White (SG)	Solvent polyacrylate, permanent, with high initial tack and final adhesion, transparent	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	Designed for applications on "hard-to-stick" surfaces such as low energy plastics (polyethylene, polypropylene) and rough or textured surfaces. Recommended for long-term outdoor graphic applications and markings on caravans and car trailers.
<b>ORAJET® 3105</b>	Polymeric PVC film 100 micron	White (G), (M), (SG)	Solvent polyacrylate permanent, grey	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	For brilliant, digital large-format prints and displays in long-term outdoor applications.
		Transparent (G)	Transparent		
<b>ORAJET® 3105HT</b>	Polymeric PVC film 100 micron	White (G)	Solvent polyacrylate, permanent, with high initial tack and final adhesion, grey	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	For brilliant, long-term, digital large-format prints and displays in extreme outdoor conditions and on "hard-to-stick" substrates.
<b>ORAJET® 3109</b>	Polymeric PVC film 100 micron	White (G)	Solvent polyacrylate, removable, grey	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	For digital large-format prints and displays in outdoor applications.
<b>ORAJET® 3850</b>	Translucent polymeric PVC film 80 micron	White (SG)	Solvent polyacrylate, permanent, transparent	PE-coated double sided silicone paper 143 g/m <sup>2</sup>	For illuminated displays for long-term outdoor applications, e.g. application on light boxes.

Long-term Application

For information about ICC profiles please see [www.orafol.com](http://www.orafol.com)  
The films are printable with solvent-based, UV-curable and latex inkjet printers  
STANDARD SPLICE-FREE

1 Measurement after 24 h

2 Adhered to aluminium, short-term exposure

3 Special sizes available upon request

4 Under vertical outdoor exposure

(normal climate of central Europe)

5 Not available in transparent matt

6 Only available in white gloss

7 Not available in white matt

Technical Data						Recommendations														
Adhesive <b>1</b> power (FINAT- TM 1) N/25 mm (average)	Minimum application temperature	Temperature resistance range (i.e. no variation) <b>2</b>	Service life (unprinted) in years <b>4</b>	Standard sizes <b>3</b> of rolls on 3" and 6" cores and Arizona		ORAGUARD® Laminating Films														
				Widths (mm)	Lengths (m)	293 / 293F **	297GF	289F **	290 / 290F ** / 290DU*	259	215 / 215DU *	210 / 210DU *	200	236	255AS	250AS	252F			
16	+8° C	-50° C to +100° C	10	1370 1520	25 50			*												
18	+8° C	-50° C to +100° C	10	760 1050 1370 1520	50 100	*			*											
			8																	
16	+8° C	-50° C to +100° C	10	760 1050 1370 1520	50 100	*			*											
28	+4° C	-50° C to +100° C	7	1370 1520	50	*			*											
			5																	
12	+10° C	-30° C to +70° C	7	1370 1520	25 50															*
18	+8° C	-50° C to +100° C	8	1000 1370 1520	25 50						*									
18	+8° C	-50° C to +90° C	8	760 <b>6</b> 1370 1520 <b>6</b>	50	*	*		*		*									
18	+8° C	-50° C to +90° C	7	760 1370 1520 1600	50	*	*		*		*									
18	+8° C	-50° C to +90° C	7	760 <b>5</b> (t only G) 1050 <b>5</b> 1370 1520 <b>5</b> (t only G) 1600 <b>6</b>	50 100 250	*	*		*		*									
16	+8° C	-50° C to +90° C	7	760 1050 <b>6</b> 1370 1520	50 100 250	*	*		*		*									
18	-5° C	-50° C to +90° C	7	760 1370 1520	50	*	*		*		*									
8	+8° C	-50° C to +90° C	7	760 1370 1520	50 100 250	*	*		*		*									
28	+4° C	-50° C to +100° C	7	1370	50		*		*		*									
18	+8° C	-50° C to +90° C	7	760 1370 1520 <b>7</b>	50 100 250	*	*		*		*									
28	+4° C	-50° C to +100° C	5	1370 1520	50 100 250	*	*		*		*									
8	+8° C	-50° C to +90° C	7	1370 1520	50 100 250	*	*		*		*									
18	+8° C	-40° C to +80° C	7	760 1370 1520	50 100 250	*	*		*		*									

\*) For UV prints we offer the special laminating films ORAGUARD® 210DU, ORAGUARD® 215DU and ORAGUARD® 290DU.

\*\*) ORAGUARD® 293F, 293AC, 290F and 289F are covered with a release material consisting of a 36 micron polyester film.

The statements in this information sheet are based upon our knowledge and practical experience. This data is intended only as a source of information and is given without guarantee and does not constitute a warranty. Due to the wide variety of possible uses and applications, customers should independently determine the suitability of this material for their specific purpose, prior to use.

# Films for solvent based inkjet printing

Description						
	Product	Front Materials	Colours / surfaces Gloss (G) Matt (M) Semi-gloss (SG)	Adhesive	Covering Material	Areas of use
Long-term Application	<b>ORALITE® 5600</b>	Retroreflective cast PVC film 110 to 140 micron	Various colours	Solvent polyacrylate, permanent, removable by heat	PE-coated double sided silicone paper 145 g/m <sup>2</sup>	Developed for high-quality vehicle livery, to produce lettering, markings and decorations. Suitable for use on cutting plotters; provides good adaptability also to corrugations and rivets.
	<b>ORALITE® 5600E</b>	Retroreflective cast PVC film 90 to 140 micron	Various colours	Solvent polyacrylate, permanent, removable by heat	PE-coated double sided silicone paper 145 g/m <sup>2</sup>	Developed for high-quality vehicle livery, to produce lettering, markings and decorations, which may be applied within contour markings according to ECE 104. Suitable for use on cutting plotters; provides good adaptability also to corrugations and rivets.
	<b>ORALITE® 5650RA</b>	Retroreflective cast PVC film 110 to 140 micron	Various colours	Solvent polyacrylate, permanent, grey	PE-coated double sided silicone paper 145 g/m <sup>2</sup>	Developed for large format high-quality vehicle livery, to produce lettering, markings and decorations. The <i>RapidAir®</i> technology enables easy and rapid application without air inclusion, especially of large-sized graphics or decals. Suitable for even or slightly curved surfaces.
	<b>ORAJET® 3961</b>	High performance cast PVC film 55 micron	White (G)	Modified solvent polyacrylate, permanent, grey Aggressive initial tack and high final adhesion.	Silicone coated paper 143 g/m <sup>2</sup>	For special decorations on challenging surfaces of caravans and trailers.
Medium-term Application	<b>ORALITE® 5400</b>	Retroreflective special cast PVC film, 90 micron	Various colours	Solvent polyacrylate, permanent	PE-coated double sided silicone paper 145 g/m <sup>2</sup>	Developed for the manufacture of guidance and information signs as well as for reflective advertising. For short-term outdoor use. Suitable for digital printing with solvent based inks and for use on cutting plotters. Good adaptability to uneven surfaces.
	<b>ORALITE® 5200</b>	Retroreflective special cast PVC film, 80 micron	Various colours	Solvent polyacrylate, permanent	PE-coated double sided silicone paper 145 g/m <sup>2</sup>	For the manufacture of temporary sign boards and reflective advertising.
	<b>ORAJET® 3165</b>	Special PVC film 100 micron	White (G), (M), (SG)	Solvent polyacrylate, permanent, grey	PE-coated double sided silicone paper 148 g/m <sup>2</sup>	For brilliant and colourful displays for digital large-format prints in outdoor applications.
			Transparent (G), (M), (SG)	Transparent		
	<b>ORAJET® 3165RA</b>	Special PVC film 100 micron	White (G), (M)	Solvent polyacrylate, permanent, grey	PE-coated double sided silicone paper 165 g/m <sup>2</sup>	For brilliant and colourful displays for digital large-format prints in outdoor application. The <i>RapidAir®</i> technology enables easy and rapid application without air inclusion, especially for large-sized graphics or decals.
	<b>ORAJET® 3169</b>	Special PVC film 100 micron	White (G), (M), (SG)	Solvent polyacrylate removable, grey	PE-coated double sided silicone paper 148 g/m <sup>2</sup>	For brilliant and colourful displays for digital large-format prints in outdoor applications.
			Transparent (G), (M)	Transparent		
	<b>ORAJET® 3651</b>	Special PVC film 70 micron	White (G), (M), (SG)	Solvent polyacrylate, permanent, grey	PE-coated double sided silicone paper 148 g/m <sup>2</sup>	For brilliant and colourful displays for digital large-format prints in outdoor applications.
			Transparent (G), (M), (SG)	Transparent		
	<b>ORAJET® 3651RA</b>	Special PVC film 70 micron	White (G)	Solvent polyacrylate, permanent, grey	PE-coated double sided silicone paper 165 g/m <sup>2</sup>	For brilliant and colourful displays for digital large-format prints in outdoor application. The <i>RapidAir®</i> technology enables easy and rapid application without air inclusion, especially for large-sized graphics or decals.
<b>ORAJET® 3650</b>	Special PVC film 70 micron	White (G), (M), (SG)	Solvent polyacrylate, permanent, transparent	PE-coated double sided silicone paper 148 g/m <sup>2</sup>	For brilliant and colourful displays for digital large-format prints in outdoor applications.	
<b>ORAJET® 3691</b>	Special PVC film 70 micron	White (G), (M)	Solvent polyacrylate, removable, grey	PE-coated double sided silicone paper 148 g/m <sup>2</sup>	For brilliant and colourful displays for digital large-format prints in outdoor applications.	
		Transparent (G), (M)	Transparent			

① Measurement after 24 h

② Adhered to aluminium, short-term exposure

③ Special sizes available upon request

④ Adhered to steel

⑤ Adhered to acrylic glass

⑥ Only available in white

⑦ Only available in gloss and matt

⑧ Under vertical outdoor exposure (normal climate of central Europe)

⑨ Only available in gloss

For information about ICC profiles please see [www.orafol.com](http://www.orafol.com)  
The films are printable with solvent-based, UV-curable and latex inkjet printers  
STANDARD SPLICE-FREE

Technical Data						Recommendations										
Adhesive <b>1</b> power (FINAT- TM 1) N/25 mm (average)	Minimum application temperature	Temperature resistance range (i.e. no variation)	Service life (unprinted) in years <b>8</b>	Standard sizes <b>9</b> of rolls on 3" and 6" cores and Arizona		ORAGUARD® Laminating Films										
				Widths (mm)	Lengths (m)	293 / 293F **	297GF	290 / 290F ** / 290DU *	215 / 215DU *	210 / 210DU *	200	236	255AS	250AS		
17 <b>4</b> 17.5 <b>5</b>	+15° C	-50° C to +95° C	7	610 760 <b>6</b> 1235 1370 <b>6</b> 1520 <b>6</b>	25 50	*		*								
17 <b>4</b> 17.5 <b>5</b>	+15° C	-50° C to +95° C	7	610 760 <b>6</b> 1235 1370 <b>6</b> 1520 <b>6</b>	25 50	*		*								
17 <b>4</b> 17.5 <b>5</b>	+15° C	-50° C to +95° C	7	610 760 <b>6</b> 1235 1370 <b>6</b> 1520 <b>6</b>	25 50	*		*								
30	+4° C	-50° C to +100° C	10	1370 1520	50			*								
15 <b>4</b> film tear	+15° C	-50° C to +82° C	4	610 1235	50	*		*								
15 <b>4</b> film tear	+15° C	-50° C to +82° C	3	610 1235	50	*		*								
18	+8° C	-40° C to +80° C	5	760 1050 <b>6</b> 1370 1520	50 100 250				*	*						
16	+8° C	-40° C to +80° C	5	760 1050 <b>9</b> 1370 1520	50 100 250				*	*						
8	+8° C	-40° C to +80° C	5	760 1370 1520	50 100 250				*	*						
18	+8° C	-40° C to +80° C	5	760 1050 <b>9</b> 1370 1520	50 100 250				*	*						
16	+8° C	-40° C to +80° C	5	1370 1520	50 100 250				*	*						
18	+8° C	-40° C to +80° C	5	760 1050 <b>7</b> 1370 1520	50 100 250				*	*						
8	+8° C	-40° C to +80° C	5	760 1050 <b>9</b> 1370 1520	50 100 250				*	*						

\*) For UV prints we offer the special laminating films ORAGUARD® 210DU, ORAGUARD® 215DU and ORAGUARD® 290DU.

\*\*\*) ORAGUARD® 293F, 293AC, 290F and 289F are covered with a release material consisting of a 36 micron polyester film.

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# Films for solvent based inkjet printing

Description					
Product	Front Materials	Colours / surfaces Gloss (G) Matt (M) Semi-gloss (SG)	Adhesive	Covering Material	Areas of use
<b>ORAJET® 3930</b>	Three-layered, cadmium-free high performance PVC film, 150 micron	Light yellow (G)	Solvent polyacrylate, permanent, transparent	PE-coated double-sided silicone paper, 145 g/m <sup>2</sup>	For indoor and outdoor marking of emergency exits and danger spots. For outdoor marking recommended in combination with ORAGUARD® 293.
<b>ORAJET® 3451</b>	Highly flexible special PVC film 80 micron	White (SG)	Solvent polyacrylate, permanent	PE-coated double sided silicone paper 148 g/m <sup>2</sup>	For displays on flexible substrates in outdoor applications, e.g. banners.
<b>ORAJET® 3161DT</b>	Soft PVC film 100 micron	White (G), (M) Transparent (G), (M)	Solvent polyacrylate, permanent, transparent	Silicone-coated paper 135 g/m <sup>2</sup>	For brilliant and colourful short- and medium-term outdoor applications. Good processing properties at low temperatures.
<b>ORAJET® 3164</b>	Soft PVC film 100 micron	White (G), (M) Transparent (G), (M)	Polyacrylate, permanent, transparent	Silicone-coated paper 135 g/m <sup>2</sup>	For brilliant and colourful short- and medium-term outdoor applications.
<b>ORAJET® 3164HT</b>	Soft PVC film 100 micron	White (G), (M)	Polyacrylate, permanent, transparent High initial tack	Silicone-coated paper 135 g/m <sup>2</sup>	For brilliant and colourful advertising for short- and medium-term outdoor use. Indoor exposure is almost unlimited. The strong permanent adhesive exhibits excellent initial peel adhesion even onto apolar surfaces.
<b>ORAJET® 3164X</b>	Soft PVC film 100 micron	White (G), (M)	Polyacrylate, permanent, grey	Silicone-coated paper 135 g/m <sup>2</sup>	For brilliant and colourful short- and medium-term outdoor applications.
<b>ORAJET® 3164XRA</b>	Soft PVC film 100 micron	White (G), (M)	Polyacrylate, permanent, grey	PE-coated double-sided silicone paper, 145 g/m <sup>2</sup>	For brilliant and colourful digital advertising prints in short- and medium-term outdoor applications. The <i>RapidAir</i> ® technology enables easy and rapid application without air inclusion, especially of large-sized decals.
<b>ORAJET® 3162</b>	Soft PVC film 100 micron	White (G), (M) Transparent (G), (M)	Polyacrylate, removable, transparent	Silicone-coated paper 135 g/m <sup>2</sup>	For brilliant and colourful short- and medium-term outdoor applications.
<b>ORAJET® 3162X</b>	Soft PVC film 100 micron	White (G), (M)	Polyacrylate, removable, grey	Silicone-coated paper 135 g/m <sup>2</sup>	For brilliant and colourful short- and medium-term outdoor applications.
<b>ORAJET® 3162XRA</b>	Soft PVC film 100 micron	White (G), (M)	Polyacrylate, removable, grey	PE-coated double-sided silicone paper, 145 g/m <sup>2</sup>	For brilliant and colourful digital advertising prints in short- and medium-term outdoor applications. The <i>RapidAir</i> ® technology enables easy and rapid application without air inclusion, especially of large-sized decals.
<b>ORAJET® 3264</b>	Soft PVC film 200 micron	White (G)	Polyacrylate, permanent, transparent	Silicone-coated paper 135 g/m <sup>2</sup>	For brilliant and colourful short- and medium-term outdoor applications.
<b>ORAJET® 3262</b>	Soft PVC film 200 micron	White (G)	Polyacrylate, removable, transparent	Silicone-coated paper 135 g/m <sup>2</sup>	For brilliant and colourful short- and medium-term outdoor applications.
<b>ORAJET® 3268</b>	Soft PVC film 150 micron	White (M)	Polyacrylate, easily removable, transparent	Silicone coated paper 135 g/m <sup>2</sup>	For indoor applications onto wall paper, e.g. decorations and advertisements.
<b>ORAJET® 3628</b>	Soft PVC film 80 micron	White (G), (M) Transparent (G)	Polyacrylate, easily removable, transparent	Silicone coated paper 135 g/m <sup>2</sup>	For indoor applications onto wall paper, e.g. decorations and advertisements.
<b>ORAJET® 3640</b>	Soft PVC film 80 micron	White (G), (M) Transparent (G), (M)	Polyacrylate, permanent, transparent	Silicone coated paper 135 g/m <sup>2</sup>	For brilliant and colourful displays in short- and medium-term outdoor applications.
<b>ORAJET® 3641</b>	Soft PVC film 80 micron	White (G), (M)	Polyacrylate, permanent, grey	Silicone coated paper 135 g/m <sup>2</sup>	For brilliant and colourful displays in short- and medium-term outdoor applications.
<b>ORAJET® 3620</b>	Soft PVC film 80 micron	White (G), (M) Transparent (G), (M)	Polyacrylate, removable, transparent	Silicone coated paper 135 g/m <sup>2</sup>	For brilliant and colourful displays in short- and medium-term outdoor applications.
<b>ORAJET® 3621</b>	Soft PVC film 80 micron	White (G), (M)	Polyacrylate, removable, grey	Silicone coated paper 135 g/m <sup>2</sup>	For brilliant and colourful displays in short- and medium-term outdoor applications.
<b>ORAJET® 3851</b> <small>NEW</small>	Polymeric PVC film 80 micron	Silverygrey with fine structure (090)	Solvent polyacrylate, permanent transparent	Double sided PE coated paper, one side siliconised, 143 g/m <sup>2</sup>	Digital printing glass decor film, for decorative design of shop windows and glass doors.

Medium-term Application

For information about ICC profiles please see [www.orafol.com](http://www.orafol.com)  
The films are printable with solvent-based, UV-curable and latex inkjet printers  
STANDARD SPLICE-FREE

① Measurement after 24 h  
② Adhered to aluminium, short-term exposure  
③ Special sizes available upon request

④ ORAJET® 3620 matt transparent is only available in widths 1370 mm and 1520 mm.  
⑤ Under vertical outdoor exposure (normal climate of central Europe)  
⑥ Only interior use



Technical Data						Recommendations												
Adhesive <sup>1</sup> power (FINAT-TM 1) N/25 mm (average)	Minimum application temperature	Temperature resistance range (i.e. no variation)	Service life (unprinted) in years <sup>3</sup>	Standard sizes <sup>2</sup> of rolls on 3" and 6" cores and Arizona		ORAGUARD® Laminating Films												
				Widths (mm)		Lengths (m)	293 / 293F **	297GF	290 / 290F ** / 290DU*	215 / 215DU *	210 / 210DU *	200	236	255AS	250AS			
18	+8° C	-40° C to +100° C	5	1370 1520	10 25	*												
14	+8° C	-20° C to +65° C	4	760 1370 1520	50 100 250					*								
18	-5° C	-40° C to +80° C	4	760 1370 1520	50 100 250						*	*						
16	+10° C	-40° C to +80° C	4	760 1000 1050 1260	1370 1520 1600 2000	50 100 250					*	*						
22	+10° C	-40° C to +80° C	4	1370	50						*	*						
16	+10° C	-40° C to +80° C	4	760 1000 1050 1260	1370 1520 1600 2000	50 100 250					*	*						
14	+10° C	-40° C to +80° C	4	1050 1370 1520	50						*	*						
6	+10° C	-40° C to +80° C	4	760 1000 1050 1260	1370 1520 1600 2000	50 100 250					*	*						
6	+10° C	-40° C to +80° C	4	760 1000 1050 1260	1370 1520 1600 2000	50 100 250					*	*						
6	+10° C	-40° C to +80° C	4	1050 1370 1520	50						*	*						
16	+10° C	-40° C to +80° C	4	1370	50 100						*	*						
6	+10° C	-40° C to +80° C	4	1370	50 100						*	*						
6	+10° C	-	2 <sup>4</sup>	760 1370 1520	50 100						*	*						
6	+10° C	-	2 <sup>4</sup>	760 1370 1520	50 100 250						*	*						
16	+10° C	-40° C to +80° C	4	760 1000 1050 1260	1370 1520 1600 2000	50 100 250					*	*						
16	+10° C	-40° C to +80° C	4	760 1000 1050 1260	1370 1520 1600 2000	50 100 250					*	*						
7	+10° C	-40° C to +80° C	4	760 1000 1050 1260	1370 1520 1600 2000 <sup>4</sup>	50 100 250					*	*						
7	+10° C	-40° C to +80° C	4	760 1050 1260 1370	1520 1600 2000	50 100 250					*	*						
18	+8° C	-40° C to +90° C	7	1370 1520	25 50													

<sup>1</sup>) For UV prints we offer the special laminating films ORAGUARD® 210DU, ORAGUARD® 215DU and ORAGUARD® 290DU.

<sup>2</sup>) ORAGUARD® 293F, 293AC, 290F and 289F are covered with a release material consisting of a 36 micron polyester film.

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# Films for solvent based inkjet printing

Description					
Product	Front Materials	Colours / surfaces Gloss (G) Matt (M) Semi-gloss (SG)	Adhesive	Covering Material	Areas of use
<b>ORAJET® 3967AC</b>	Perforated cast PVC film, 65 micron	White (G)	Solvent polyacrylate, repositionable, permanent, grey	PE-coated double-sided silicone paper, 145 g/m <sup>2</sup>	Perforated Cast PVC film for short-term exterior graphic applications on aircrafts, such as markings or decorations. Especially recommended in combination with ORAGUARD® 293AC.
<b>ORACAL® 1663</b>	Highly pigmented opaque PVC film 110 micron	White (G), (M)	Solvent polyacrylate, removable, transparent	Silicone coated paper 135 g/m <sup>2</sup>	For ORAFOL® Floor Graphics systems in connection with ORAGUARD® 250AS or 255AS. Excellent opacity suppressing colour shadows of the floor surface. The adhesive guarantees clean removal.
<b>ORACAL® 1660</b>	Highly pigmented opaque PVC film 110 micron	White (G), (M)	Polyacrylate, removable, transparent	Silicone coated paper 135 g/m <sup>2</sup>	For marking and decoration with high demands on resistance and durability, e.g. lettering on vehicles and means of transportation.
<b>ORACAL® 1670</b>	Highly pigmented opaque PVC film 110 micron	White (G), (M)	Polyacrylate, permanent, transparent	Silicone coated paper 135 g/m <sup>2</sup>	For marking and decoration with high demands on resistance and durability, e.g. lettering on vehicles and means of transportation.
<b>ORAJET® 3301F</b>	Polyester film top coated 50 micron	Metallised chrome, chrome brushed	Modified solvent polyacrylate, permanent, transparent	Silicone-coated polyesterfilm, 100 micron	Especially for doming applications.
<b>ORAJET® 3350</b>	Metallised polyester special lacquer top coating 50 micron	Chrom, doubled sided gold	Solvent polyacrylate, permanent, transparent	Double sided PE coated paper, one side siliconised, 143 g/m <sup>2</sup>	For labels, name tags, technical ID labels, moldings and safety labels.
<b>ORAJET® 3352F</b>	Ultra clear, top-coated polyester film, 70 micron	Transparent (G)	Solvent polyacrylate, removable, transparent	Silicone-coated polyester film, 36 micron	For ultra-clear, colourful indoor and short-term outdoor advertising efforts and glass decorations on windows.
<b>ORAJET® 3675</b>	Perforated special PVC film 140 micron	White (G) with black backing	Solvent polyacrylate, permanent, transparent	Silicone coated paper non-perforated 135 g/m <sup>2</sup>	Window Graphics Film for advertising on even, transparent glass surfaces that should allow light to pass through, e.g. application on means of transportation (only with ORAGUARD® 297GF), 50% printable area.
<b>ORAJET® 3635</b>	Perforated special PVC film 140 micron	White (G) with black backing	Solvent polyacrylate, removable, transparent	Silicone coated paper non-perforated 135 g/m <sup>2</sup>	Window Graphics Film for advertising on even, transparent glass surfaces that should allow light to pass through, e.g. application on means of transportation (only with ORAGUARD® 297GF), 50% printable area.
<b>ORAJET® 3676</b>	Perforated special PVC film 140 micron	White (G) with black backing	Solvent polyacrylate, permanent, transparent	Silicone coated paper non-perforated 135 g/m <sup>2</sup>	Window Graphics Film for advertising on even, transparent glass surfaces that should allow light to pass through, e.g. application on means of transportation (only with ORAGUARD® 297GF), 60% printable area.
<b>ORAJET® 3636</b>	Perforated special PVC film 140 micron	White (G) with black backing	Solvent polyacrylate, removable, transparent	Silicone coated paper non-perforated 135 g/m <sup>2</sup>	Window Graphics Film for advertising on even, transparent glass surfaces that should allow light to pass through, e.g. application on means of transportation (only with ORAGUARD® 297GF), 60% printable area.
<b>ORAJET® 3954</b>	Cast PVC film 55 micron	White (G)	Solvent polyacrylate, permanent, grey	PE-coated double-sided silicone paper, 145 g/m <sup>2</sup>	For brilliant and colourful short-term outdoor advertising on flat or simple curved unsealed textured surfaces, e.g. on brick, concrete block and poured concrete. Easily removable by slight heating.
<b>ORAJET® 3174X 3174</b>	Polypropylene film, top coated, PVC-free 100 micron	3174X: White (G), (M) 3174: White (G)	Polyacrylate permanent, grey Polyacrylate permanent, transparent	Silicone coated paper 135 g/m <sup>2</sup>	For eco-friendly brilliant and colourful advertising for indoor and short-term outdoor use. Suitable for even and slightly curved surfaces (recommended: ORAGUARD® 236).
<b>ORAJET® 3172X</b>	Polypropylene film, top coated, PVC-free 100 micron	White (G)	Polyacrylate, removable, grey	Silicone coated paper 135 g/m <sup>2</sup>	For eco-friendly brilliant and colourful advertising for indoor and short-term outdoor use. Suitable for even and slightly curved surfaces (recommended: ORAGUARD® 236).

Short-term Application

For information about ICC profiles please see [www.orafol.com](http://www.orafol.com)  
The films are printable with solvent-based, UV-curable and latex inkjet printers \*\*\*  
STANDARD SPLICE - FREE

① Measurement after 24 h

② Adhered to aluminium, short-term exposure

③ Special sizes available upon request

④ Under vertical outdoor exposure (normal climate of central Europe)

Technical Data						Recommendations											
Adhesive <b>I</b> power (FINAT- TM 1) N/25 mm (average)	Minimum application temperature	Temperature <b>II</b> resistance range (i.e. no variation)	Service life (unprinted) in years <b>III</b>	Standard sizes <b>IV</b> of rolls on 3" and 6" cores and Arizona		ORAGUARD® Laminating Films											
				Widths (mm)	Lengths (m)	293 / 293AC / 293F **	297GF	290 / 290F ** / 290DU*	215 / 215DU*	210 / 210DU*	200	236	255AS	250AS			
18	+10° C	-50° C to +100° C	2	1520	25 50	*											
5	+10° C	-40° C to +80° C	3	1000 1260 (G) 1370 1400 1520	50 100 250										*	*	
6	+10° C	-40° C to +80° C	3	1000 1260 1370 1400 1520	50 100 250					*	*						
16	+10° C	-40° C to +80° C	3	1000 1260 1370 1400 1520	50 100 250					*	*						
25	+8° C	-40° C to +120° C	2	1370	25 50												
12	+8° C	-40° C to +120° C	chrom: 2 gold: 1	1370	25 50												
2	+10° C	-30° C to +70° C	1	1370 1520	25 50												
12	+10° C	-40° C to +80° C	3	760 1370 1520	25 50		*										
3	+10° C	-40° C to +80° C	3	760 1370 1520	25 50		*										
12	+10° C	-40° C to +80° C	3	760 1370 1520	25 50		*										
3	+10° C	-40° C to +80° C	3	760 1370 1520	25 50		*										
16	+10° C	-50° C to +100° C	1	760 1370 1520	50	*		*									
16	+10° C	-40° C to +80° C	2	1370	50								*				
2	+10° C	-40° C to +80° C	2	1370	50								*				

\*) For UV prints we offer the special laminating films ORAGUARD® 210DU, ORAGUARD® 215DU and ORAGUARD® 290DU.

\*\*) ORAGUARD® 293F, 293AC, 290F and 289F are covered with a release material consisting of a 36 micron polyester film.

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\*\*\*) ORAJET® 3675, 3635, 3676 and 3636 are not printable with UV-curable inks.

# Films for thermotransfer printing

Description						
	Product	Front Materials	Colours / surface finish <sup>4</sup> Gloss (G) Matt (M) Semi-gloss (SG)	Adhesive	Covering Material	Areas of use
Long-term Application	<b>ORACAL® 951</b>	Cast PVC film 50 micron	White (G)	Solvent polyacrylate, permanent, transparent	Silicone coated paper 137 g/m <sup>2</sup>	For displays with highest degree of brilliancy and durability in outdoor applications, e.g. vehicle lettering. Particularly suitable for rivets and corrugations.
	Transparent (G)					
	<b>ORACAL® 820G</b>	Cast special PVC film 55 micron Safety film	White (G)	Polyacrylate, permanent, transparent	PE-coated paper on both sides 148 g/m <sup>2</sup>	For very adherent labels suitable for official documents. Removal and re-use is impossible.
	<b>ORACAL® 751C</b>	Cast PVC film 60 micron	White (G)	Solvent polyacrylate, permanent, transparent	Silicone coated paper 137 g/m <sup>2</sup>	For displays with an excellent degree of brilliancy and durability in outdoor applications, e.g. vehicle lettering. Ideal for adhesion over rivets and to corrugations.
	Transparent (G)					
<b>ORACAL® 551</b>	Polymeric PVC film 65 micron	White (G)	Solvent polyacrylate, permanent, transparent	Silicone coated paper 137 g/m <sup>2</sup>	For displays with a high degree of brilliancy and durability in outdoor applications.	
	<b>ORACAL® 8500</b>	Translucent special PVC film 80 micron	White (SG)	Solvent polyacrylate, permanent, transparent	Silicone coated paper 137 g/m <sup>2</sup>	For illuminated outdoor displays, e.g. application on light boxes.
Medium-term Application	<b>ORACAL® 651</b>	Special PVC film 70 micron	White (G)	Solvent polyacrylate, permanent, transparent	Silicone coated paper 137 g/m <sup>2</sup>	For decorative and colourful outdoor advertising.
	Transparent (G)					
	<b>ORACAL® 451</b>	Highly flexible Special PVC film 80 micron	White (SG)	Solvent polyacrylate, permanent, transparent	Silicone coated paper 137 g/m <sup>2</sup>	For advertising on flexible surfaces in outdoor applications, e.g. tarpaulins.
	<b>ORACAL® 641</b>	Soft PVC film 75 micron	White (G)	Polyacrylate, permanent, transparent	Silicone coated paper 135 g/m <sup>2</sup>	For decorative and colourful outdoor advertising.
	Transparent (G)					
Short-term Application	<b>ORACAL® 1663</b>	Highly pigmented special PVC film 110 micron	White (G)	Solvent polyacrylate, removable, transparent	Silicone coated paper 135 g/m <sup>2</sup>	For floor graphics when used in connection with ORAGUARD® laminating films 250AS or 255AS.

For information about ICC profiles please see [www.orafol.com](http://www.orafol.com)

# Materials for water-based ink-jet printing

Description						
	Product	Front Materials	Colours / surface finish <sup>4</sup> Gloss (G) Matt (M) Semi-gloss (SG)	Adhesive	Covering Material	Areas of use
Outdoor Application	<b>ORAJET® 1917</b>	Special soft PVC film with one-sided microporous water-proof inkjet coating 140 micron	White (M)	Solvent polyacrylate, permanent, transparent	Silicone coated paper 135 g/m <sup>2</sup>	For brilliant and colourful large-format advertising. Long-term protection against UV-rays and mechanical stress when used in combination with ORAGUARD® laminating films. If you use dye-inks, lamination is also necessary for indoor applications. For outdoor applications with direct water contact, sealing of the edges is recommended.
	<b>ORAJET® 1972X</b>	Polypropylene film top coated PVC-free 145 micron	White (M)	Polyacrylate, permanent, grey	Silicone coated paper 135 g/m <sup>2</sup>	For vivid, colour intensive large format advertising prints. Specially developed for high speed water based digital prints.
Indoor -	<b>ORAJET® 1902</b>	Coated paper 120 g/m <sup>2</sup> with one-sided special inkjet coating	White (M)	Polyacrylate, permanent, transparent	Silicone coated paper 80 g/m <sup>2</sup>	For inexpensive production of large-format prints for short-term indoor decoration.

For information about ICC profiles please see [www.orafol.com](http://www.orafol.com)

<sup>1</sup> Measurement after 24 h

<sup>2</sup> Adhered to aluminium, short-term exposure

<sup>3</sup> Special sizes available upon request

<sup>4</sup> Colours available on request

<sup>5</sup> Under vertical outdoor exposure (normal climate of central Europe)

Technical Data							Recommendations										
Recommended inks 1) dye inks 2) pigmented 3) oil-based 4) mild solvent	Adhesive <b>1</b> power (FINAT-TM 1) N/25 mm (average)	Minimum applica- tion tempera- ture	Tempera- ture <b>2</b> resistance range (i.e. no variation)	Service life (unprinted) in years <b>3</b>	Standard sizes <b>3</b> of rolls on 2" cores		ORAGUARD® Laminating Films										
					Widths (mm)	Lengths (m)	293 / 293F **	297GF	290 / 290F ** / 290DU*	215 / 215DU *	210 / 210DU *	200	236	255AS	250AS		
-	18	+8° C	-50° C to +110° C	10 8	378 1000	50	*	*	*								
	The adhesive power is higher than its tensile strength	+10° C	-40° C to +90° C	5	378 1000	50											
-	18	+8° C	-50° C to +120° C	8 7	378 1000	50	*	*	*								
-	18	+8° C	-50° C to +90° C	8 7	378 1000	50		*	*	*							
-	18 (glass) 16 (acrylic glass)	+8° C	-40° C to +90° C	7	378 1000	50				*							
-	18	+8° C	-40° C to +80° C	5 4	378 1000	50				*	*						
-	14	+8° C	-20° C to +65° C	3	378 1000	50				*	*						
-	16	+10° C	-40° C to +80° C	4 3	378 1000	50					*	*					
-	5	+8° C	-40° C to +80° C	3	1000 1260 1370 1400 1520	50									*	*	

\*) For UV prints we offer the special laminating films ORAGUARD® 210DU, ORAGUARD® 215DU and ORAGUARD® 290DU.

\*\*) ORAGUARD® 293F and 290F are covered with a release material consisting of a 36 micron polyester film.

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Technical Data							Recommendations										
Recommended inks 1) dye inks 2) pigmented 3) oil-based 4) eco-solvent	Adhesive <b>1</b> power (FINAT-TM 1) N/25 mm (average)	Minimum applica- tion tempera- ture	Tempera- ture <b>2</b> resistance range (i.e. no variation)	Service life (unprinted) in years <b>3</b>	Standard sizes <b>3</b> of rolls on 2" cores		ORAGUARD® Laminating Films										
					Widths (mm)	Lengths (m)	293 / 293F **	297GF	290 / 290F ** / 290DU*	215 / 215DU *	210 / 210DU *	200	236	255AS	250AS		
1, 2, 3 & 4	18	+10° C	-30° C to +60° C	1	914 1070 1270 1370 1520	20						*					
1, 2, 3 & 4	2	+10° C	-40° C to +80° C	2	1000	50								*			
1 & 2	16 (tear of the paper)	+10° C	-20° C to +60° C	1	914 1070 1270 1520	20					*	*					

\*) For UV prints we offer the special laminating films ORAGUARD® 210DU, ORAGUARD® 215DU and ORAGUARD® 290DU.

\*\*) ORAGUARD® 293F and 290F are covered with a release material consisting of a 36 micron polyester film.

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# Laminating Films

Description				
Product	Front Material	Colours / Surface Finish Gloss (G), Semi-gloss (SG), Matt (M), High-gloss (HG), Sand-grain structure (SO)	Adhesive	Covering Material
<b>ORAGUARD® 293</b>	Premium cast PVC film, 30 micron, ultra flexible with highest level UV-protection	Transparent (G), (M)	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 293AC</b>	Perforated, ultraflexible cast PVC film, 30 micron, ultra-flexible with highest level UV-protection	Transparent (G)	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 293F</b>	Premium cast PVC film, 30 micron, ultra flexible with highest level UV-protection	Transparent (G)	Solvent polyacrylate, permanent	Silicone coated polyester film, 36 micron
<b>ORAGUARD® 297GF</b>	Premium cast PVC film, 70 micron, with highest level UV-protection	Transparent (G)	Solvent polyacrylate, permanent	Silicone coated polyester film, 36 micron
<b>ORAGUARD® 289F</b>	Premium polyurethane high performance laminating film	Transparent (G)	Solvent polyacrylate, permanent	Silicone-coated polyester film, 36 micron
<b>ORAGUARD® 290</b>	Premium cast PVC film, 50 micron, with highest level UV-protection	Transparent (G), (M)	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 290F</b>	Premium cast PVC film, 50 micron, with highest level UV-protection	Transparent (G)	Solvent polyacrylate, permanent	Silicone coated polyester film, 36 micron
<b>ORAGUARD® 252F</b>	Ultra clear premium cast PVC film, 50 micron, with highest level UV-protection	Highly transparent (G)	Solvent polyacrylate, permanent	Silicone coated polyester film, 75 µm
<b>ORAGUARD® 290DU</b>	Premium cast PVC film, 50 micron, with highest level UV protection	Transparent (G)	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 259</b>	Premium Cast PVC film, 55 micron, with highest level UV protection	Transparent (G)	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 215</b>	Polymeric PVC film, 75 micron, with high-level UV-protection	Transparent (G), (SG), (M)	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 215DU</b>	Polymeric PVC film, 75 micron, with high level UV-protection	Transparent (G), (M)	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 210</b>	Soft PVC film, 70 micron, with high-level UV-protection	Transparent (G), (SG), (M), (SO) [5]	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 210DU</b>	Soft PVC film, 70 micron, with high level UV-protection	Transparent (G), (M)	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 200</b>	Soft PVC film, 70 micron, with high-level UV-protection	Transparent (G), (SG), (M)	Polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 220HG</b>	Polyester film, 36 micron, with high-level UV-protection	Transparent (HG)	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 221HG</b>	Polyester film, 75 micron, with high-level UV-protection	Transparent (HG)	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 372</b>	Special polyester film, 23 micron, with high-level UV-protection	Transparent (HG)	Solvent polyacrylate, permanent	Double-sided silicone coated PE paper, white, 160 g/m²
<b>ORAGUARD® 244G</b>	Special ETFE film, 70 micron, with high-level UV-protection	Highly transparent (G)	Solvent polyacrylate, permanent	Silicone coated polyester film, 75 micron
<b>ORAGUARD® 236</b>	Polypropylene film, 60 micron, with effective UV-protection, PVC-free	Highly transparent (G)	Polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 255AS</b>	Special PVC film, 170 micron, with high-level UV-protection	Transparent, raised non-skid surface	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²
<b>ORAGUARD® 250AS</b>	Special PVC film, 120 micron, with high-level UV-protection	Transparent, raised non-skid surface	Solvent polyacrylate, permanent	Silicone coated paper, white, 90 g/m²

[1] Measurement after 24 h

[2] Adhered to aluminium, short-term exposure

[3] Special sizes available on request

[4] Also available with double-sided covering

[5] 210 (SO) not available in 760, 1400 mm and 1550 mm.

[6] Only available with gloss surface

Areas of Use *	Technical Data					
	Adhesive <sup>1</sup> power (FINAT- TM 1) N/25 mm (average)	Minimum application temperature	Temperature <sup>2</sup> resistance range (i.e. no variation)	Additional UV-pro- tection ** in years	Standard sizes <sup>3</sup> of rolls	
					Widths (mm)	Lengths (m)
For indoor and outdoor protection of large-format digital prints. Because of its very good conformability especially to rivets and corrugations, ORAGUARD® 293 is recommended for car wrapping in combination with ORAJET® 3951.	12	+8° C	-50° C to +110° C	+4	760 1370 1400 1550	50
In combination with ORAJET® 3967AC Aircraft Graphic Film for the short-term exterior protection of large-format digital prints on aircrafts.	12	+8° C	-50° C to +110° C	+2	1550	25 50
For indoor and outdoor protection of large-format digital prints. Because of its very good conformability especially to rivets and corrugations, ORAGUARD® 293 is recommended for car wrapping in combination with ORAJET® 3951.	12	+8° C	-50° C to +110° C	+4	760 1370 1400 1550	50
Developed for the protection of printed ORALITE® Window Graphics Film. The laminating film with its optimised hardness covers the perforated film so that no humidity, dust or other contaminants can penetrate the perforation of the film.	12	+8° C	-50° C to +110° C	+4	760 1370 1400 1550	50
For the protection of large-format indoor and outdoor graphic applications. Recommended in combination with ORAJET® 3981RA.	12	+8° C	-50° C to +110° C	+5	1550	25 50
For the protection of digitally printed large-format pictures in indoor and outdoor applications. In combination with respective ORAFOL® digital printing films esp. for car livery and wrapping.	12	+8° C	-50° C to +110° C	+4	760 1050 1300	1370 1400 1550
For the protection of digitally printed large-format pictures in indoor and outdoor applications. Should be used in combination with the appropriate ORAFOL® digital printing films, esp. for car livery and wrapping.	12	+8° C	-50° C to +110° C	+4	760 1050 1300	1370 1400 1550
For the protection of digitally printed large-format pictures in indoor and outdoor applications. Recommended in combination with ORAJET® 3952F.	18	+10° C	-30° C to +70° C	+4	1370 1520	25 50
For the protection of digitally printed large format pictures in indoor and outdoor applications. Especially recommended for use on UV digital printing.	14	+8° C	-50° C to +110° C	+4	760 1050 1300	1370 1400 1550
In combination with the petrol resistant digital printing film ORAJET® 3959 this laminating film is particularly suited for long-term advertising applied near fuel pumps, e.g. on gas tanks or on tankers or trucks.	14	+8° C	-50° C to +110° C	+4	1370 1400 1550	50
For the protection of digitally printed large-format pictures in indoor and outdoor applications.	12	+8° C	-50° C to +90° C	+3	760 1050 1300	1370 1400 1550 1600 <sup>4</sup>
For the protection of digitally printed large-format pictures in indoor and outdoor applications. Especially recommended on UV digital printings.	14	+8° C	-50° C to +90° C	+3	760 1050 1300	1370 1400 1550
For the protection of digitally printed large-format pictures in indoor and outdoor applications.	12	+8° C	-40° C to +80° C	+2	760 1050 1300	1370 1400 1550
For the protection of digitally printed large-format images in indoor and outdoor applications. Especially recommended for use on UV digital printing.	14	+8° C	-50° C to +90° C	+2	760 1050 1300	1370 1400 1550
For the protection of digitally printed large-format pictures in indoor and outdoor applications.	10	+10° C	-40° C to +80° C	+1	760 1050 1300	1370 1400 1550
For indoor and outdoor protection of large-format digital prints on even surfaces.	12	+8° C	-40° C to +120° C	+2	1050 1300	1400 1550
For indoor and outdoor protection of large-format digital prints on even surfaces. Provides a maximum value of brilliancy and luminosity.	12	+8° C	-40° C to +120° C	+2	1050 1300	1400 1550
Surface protection especially against graffiti and environmental influences in indoor and outdoor applications (Anti Graffiti Film) on even surfaces.	12	+10° C	-40° C to +120° C	+2	1000 1260	50
Excellent protection against graffiti and environmental influences in indoor and outdoor applications (Anti Graffiti Film) on even and slightly curved surfaces.	12	+8° C	-50° C to +90° C	+3	1050 1260	1370 25 50
For the eco-friendly protection of large digital prints for indoor and short-term outdoor use. Especially recommended in combination with ORAJET® 3174.	12	+10° C	-40° C to +80° C	+1	1370	50
With its high resistance to skidding and abrasion, this product is especially suitable for the protection of floor graphics in indoor applications. Extremely stress resistant.	12	+8° C	-40° C to +80° C	-	1050 1300 1400	50
With its high resistance to skidding and abrasion, this product is especially suitable for the protection of floor graphics in indoor applications.	12	+8° C	-40° C to +80° C	-	1050 1300 1370	1400 1550

<sup>1</sup>) Laminating films increase the life of digitally printed pictures and graphics. In addition, they protect these against UV-A, -B and -C rays and abrasion. The life of a printed overlaminated film essentially depends on the materials (inks, resin or ribbons), their quality (durability and UV-resistance, please see product specifications of the manufacturers), their drying degree, curing times and on the conditions of their applications and use. Customers must carry out their own tests before use.

<sup>2</sup>) The ORAFOL® data refers to the life of an unprotected picture which has the durability of one year (normal Central European climate).

# Mounting Films

Description					
Product	Front Material	Colours / Surface Finish Gloss (G), Semi-gloss (SG), Matt (M), High-gloss (HG), Sand-grain structure (SO)	Adhesive	Covering Material	
Mounting Films	<b>ORABOND® 4052</b> <sup>4</sup>	Polyester film, 12 micron	Transparent	Double-sided solvent polyacrylate, permanent	Double-sided silicone coated PE paper, white, 120 g/m <sup>2</sup>
	<b>ORABOND® 4032</b> <sup>4</sup>	Polyester film, 12 micron	Transparent	Covered side: Solvent polyacrylate, removable. Open side: Solvent polyacrylate, permanent	Double-sided silicone coated PE paper, white, 120 g/m <sup>2</sup>
	<b>ORABOND® 4040</b> <sup>4</sup>	Polyester film, 12 micron	Transparent	Double-sided polyacrylate, permanent	Double-sided siliconised glassine paper, white, 90 g/m <sup>2</sup>
	<b>ORABOND® 1375</b>	None	Transparent	Pure acrylate, permanent	Double-sided silicone coated PE paper, brown, 100 g/m <sup>2</sup>
	<b>ORABOND® 1392TM</b>	Hard PVC film, 38 micron	White	Double-sided modified acrylic adhesive, permanent	Double-sided silicone-coated paper, white with blue ORAFOL branding 90 g/m <sup>2</sup>
	<b>ORABOND® 1395TM</b>	Polyester film, 12 micron	Transparent	Double-sided modified acrylic adhesive, permanent	Double-sided silicone-coated paper, white with blue ORAFOL branding 90 g/m <sup>2</sup>
	<b>ORABOND® 1811</b>	PE foam, 1100 micron	White	Double-sided modified acrylic adhesive, permanent	Double-sided silicone coated paper, blue, 90 g/m <sup>2</sup>

<sup>1</sup> Measurement after 24 h

<sup>2</sup> Adhered to aluminium, short-term exposure

<sup>3</sup> Special sizes available on request

<sup>4</sup> Also available with double-sided covering as 4052D, 4032D, 4040D  
and available as sheets



Areas of Use	Technical Data				
	Adhesive <sup>1</sup> power (FINAT-TM 1) N/25 mm (average)	Minimum application temperature	Temperature <sup>2</sup> resistance range (i.e. no variation)	Standard sizes <sup>3</sup> of rolls	
				Widths (mm)	Lengths (m)
Mounting film for self-adhesive protection of smooth surfaces.	11	+8° C	-40° C to +150° C	1050 1300 1400 1550	50
Mounting film for self-adhesive protection of smooth surfaces. The adhesive is guaranteed to be removable without leaving a residue, within 2 years of outdoor application.	Open side: 11 Covered side: 2	+8° C	-40° C to +120° C	1050 1300 1550	50
Mounting film for self-adhesive protection of smooth surfaces.	11	+10° C	-40° C to +150° C	1050 1300 1550	50
For signs, decorations, front plates and displays; for smooth or lightly porous surfaces.	20	+18° C	-40° C to +170° C	305 610 1220	50
For the installation of heavy displays.	38	+15° C	-40° C to +70° C	12 30 75 15 38 100 19 50 1000 25 60 1250	50
For the attachment of signs, covers, scales, metal and plastic films and for general fixing.	28	+15° C	-40° C to +160° C	12 30 75 15 38 100 19 50 1000 25 60 1550	50
For the installation of heavy displays, adheres well even to rough and difficult surfaces.	foam tear > 18	+15° C	-40° C to +80° C	12 30 75 15 38 100 19 50 1250 25 60	50

*The statements in this catalogue are based upon our knowledge and practical experience. This data is intended only as a source of information and is given without guarantee and does not constitute a warranty. Due to the wide variety of possible uses and applications, customers should independently determine the suitability of this material for their specific purposes, prior to use.*



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ORAFOL provides global excellence through technology, quality and service.

# Notes on Processing and Handling

## Introduction

ORAFOL® offers a wide range of self-adhesive digital printing materials for many different applications. They come with a well-matched set of laminating films. To ensure that the films display the specified properties, it is important to follow the instructions for preparation and application which can be found on [www.orafol.com](http://www.orafol.com). If you want to apply an ORAFOL® material on a car, please also see our practical information for self-adhesive films for application on cars (can be downloaded also on [www.orafol.com](http://www.orafol.com)). ORAFOL recommends to use only material with the same batch number for one graphical application. In this context ORAFOL ensures that every roll consists of material of the same batch number and consequently does not have any splices. When different batch numbers are used the technician should conduct tests to find out possible differences in using the films and in the quality of the graphical application.

## Storage and Processing Conditions

The self-adhesive products which ORAFOL supplies in rolls should at all times be stored either suspended (with end caps) or standing on end on the roll blocks, and never lying flat (without end caps). For storage and processing, they should be kept in a cool dry place, protected from daylight. Relative air humidity between 50% and 60% and a temperature between +18° C and +22° C should be ensured. Direct sunlight, storage beside radiators etc. should by all means be avoided. Please observe the shelf life instructions contained in the technical data sheet accompanying each film.

## Instructions for Printing

The digital printing materials should generally be handled with a high degree of care. Cotton gloves should be used to prevent damage to the surface or soiling. Check the surface quality prior to printing or application. Also check the print file with proofing. The ORAFOL® / ORAJET® digital printing media require (due to their different qualities like the thickness of the adhesive layer) different parameter settings of the printer and the selecting software (RIP). Make sure you take the relevant amount of ink and specific colour definitions into account. In addition, check the specifications of the digital printing materials and the inks for their respective applications (indoor / outdoor) and durability, and match them accordingly.

## Drying up

Freshly printed films should be spread out and left to dry after printing, to allow the residual solvent to evaporate. If freshly printed vinyls are plotted in the printed areas, the vinyl might shrink. Depending on the ink used, laminating too early may affect the functionality of the film (adhesive power, service life) by preventing residual solvents to evaporate. Printed and non-sufficiently dried films shrink after printing, during the drying process.

If the drying process of the vinyls takes place after application of the substrate, the film may shrink and come off at the edges, from corrugations and rivets. Following these processing and handling instructions, we recommend to spread out and dry the film for at least 72 hours (lying flat or hanging).

## Lamination

Lamination of inkjet prints is recommended to ensure longer lives at optimum quality (gloss, colour depth, mechanical damage). ORAGUARD® laminating films enhance the colour effect for the desired appearance of the surface (glossy, matt, semi-gloss), provide excellent protection against the UV rays of the sun destroying the colour pigments, and against humidity and abrasion. Soiling can easily be removed by using common cleaning agents. We recommend only using films of the same manufacture and type (e.g. monomeric PVC film on monomeric PVC film, and polymeric PVC film on polymeric PVC film) as their raw materials are accurately matched with each other. Lamination has to be done stress-free to prevent a deformation of the film compound. For the same reason we recommend to ensure that the temperature of the compactor is not higher than +30° C. Furthermore, we refer to our list of recommendations for complementary application of the printing materials in inkjet and thermotransfer printing, and to the specific laminating films provided for their surface protection. For product information about ORAGUARD® laminates, please see [www.orafol.com](http://www.orafol.com).

## Application

The application is described in the practical information for plotter films. For application onto cars, please see in addition the practical information on how to apply self-adhesive films on cars. For application onto car windows, the remarks in the practical information for self-adhesive films for application onto cars are to be followed.

## Removability

Please see the practical information for plotter films.

## General Information

ORAFOL provides information on ICC profiles for various printers. Please go to [www.orafol.com](http://www.orafol.com). The information in here is based on our knowledge and experience. We cannot cover all variations on application methods. Specialised or occupational knowledge and competence of a professional sign maker is presupposed. Due to the diversity of potential influencing factors during application and use, we recommend customers who wish to use the films for special applications to make their own tests of our products. No legally binding warranty of certain qualities can be derived from our information.

Digital Printing Materials  
**Engineered to Perform Better™**



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