

Graphic Solutions

Marine applications



Engineered to Achieve Perfection™



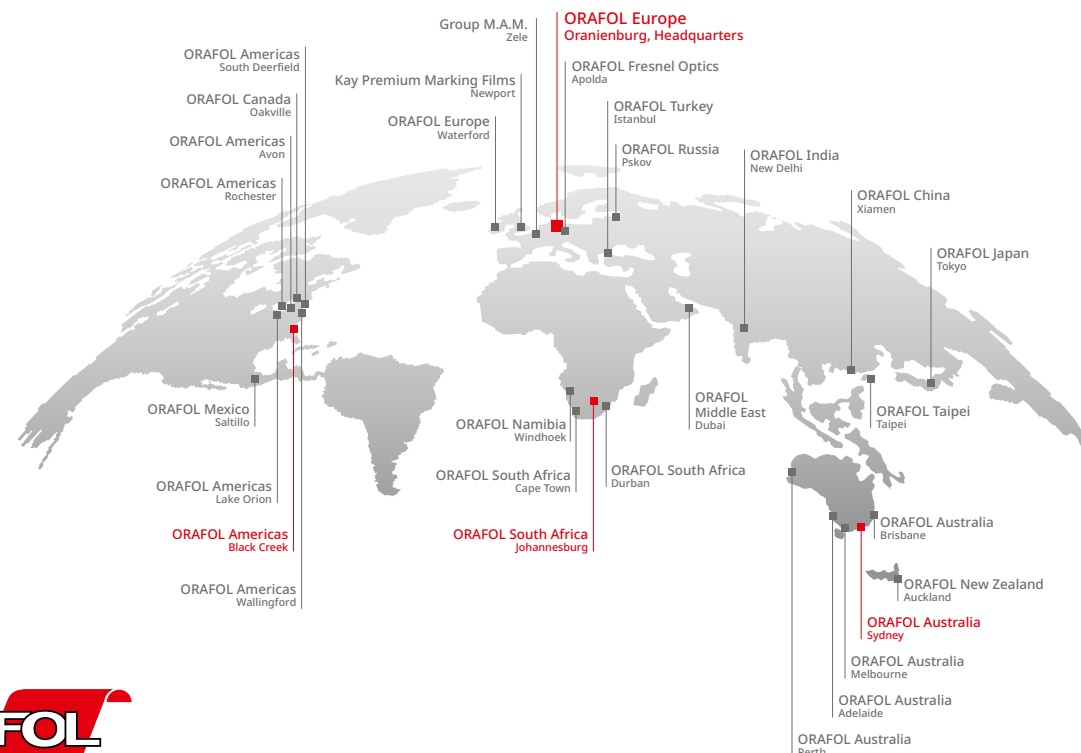


ORAFOL Europe GmbH

Headquarters and production facility

ORAFOL is one of the world's leading manufacturers of innovative self-adhesive graphic films, reflective materials and adhesive tape systems. The international ORAFOL Group is headquartered just outside the city gates of Berlin, in Oranienburg.

ORAFOL's Worldwide Locations



Marine applications

ORAFOL offers a vast range of high quality graphic films for marine applications.

Made in Germany.

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14-15 Product Overview

Boat Exteriors - Wrapping and Effect Films

Boat wrapping is the ideal complement to boat painting, which can be a very time consuming process. You will typically be able to wrap a 12-meter boat in one or two working days, where the traditional painting process takes significantly longer. Wrapping also opens up a world of new, exciting and creative design possibilities, with printed designs, subtle design enhancements with textures, or brilliant special effects. **Boat wrapping can be done to all types of boats (above waterline).**

- Significant reduction in application time
- Very affordable price, definitely cheaper than painting
- Unlike painting, vinyl wrapping does not require the time consuming task of masking off
- Environmentally friendly process for the installer
- Easy removal
- The vinyl protects original paint, so the boat hull can appear as new at the point of reselling

ORACAL® 970RA / 970RA+

Product benefits include:

- Multi-layered PVC film (110 micron, "Premium Structure Cast": 150 micron)
- Glossy or matt finish
- Solvent polyacrylate, repositionable, permanent
- Sea water resistance (DIN EN ISO 9227).
Adhered to aluminium; after 100h/35° C no variation

Premium Wrapping Cast

Single-colour films with highest durability and stability.

Premium Shift Effect Cast

Boat wrapping film with a **unique shade shifting effect depending on viewing angle**.
Ideal for wrapping of boat hulls.

Premium Special Effect Cast

Same quality as standard ORACAL® 970 film but with a **unique glitter effect**.

Premium Structure Cast

Exciting boat tuning film in a range of **different textures** and colours. The ideal design refinement film for boat hulls or boat interiors.

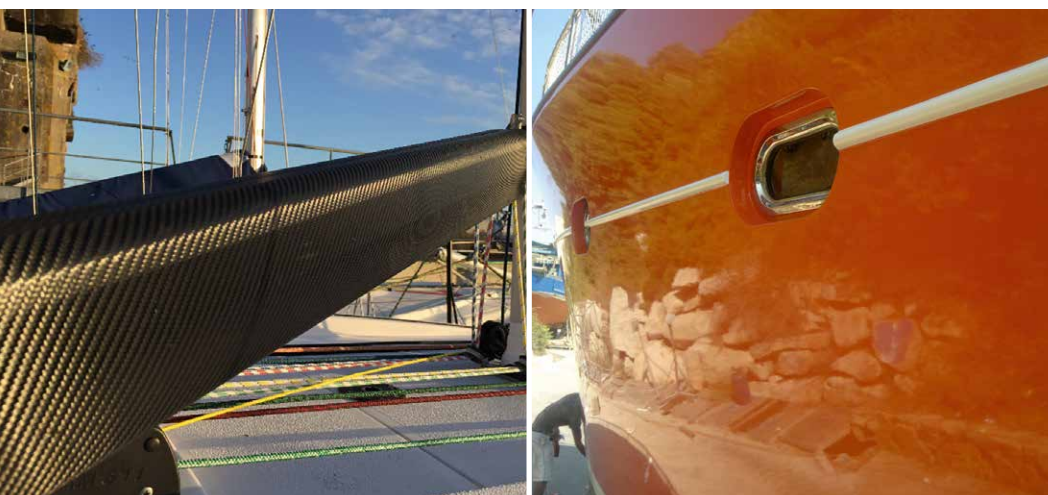


Carbon

Honeycomb

Cocoon

Brushed



Boat Exteriors - Plotter Films

Premium Cast

ORACAL® 951

Extreme durability and dimensional stability also in corrugations and on rivets.

Product benefits include:

- Premium cast PVC film (50 micron)
- Glossy finish (white and black also available in matt)
- 139 colours
- Solvent polyacrylate, permanent
- Sea water resistance (DIN EN ISO 9227).
Adhered to aluminium; after 100h/35° C no variation

High Performance Cast

ORACAL® 751C

Meets the highest requirements for solidity and durability.

Product benefits include:

- High-performance cast PVC film (60 micron)
- 117 high gloss colours + matt black / white
- Solvent polyacrylate, permanent
- Sea water resistance (DIN EN ISO 9227).
Adhered to aluminium; after 100h/35° C no variation

Boat wrapping unleashes unlimited possibilities for creating unique and personal designs, whilst at the same time benefitting from quick application times and a more environmentally friendly decoration solution.



Boat Exteriors - Digital Printing

Digital Printing Cast

ORAJET® 3951

Product benefits include:

- Premium Cast PVC film (55 micron)
- Glossy finish
- White and transparent
- Solvent polyacrylate, repositionable, permanent, grey or transparent
- Recommended laminating films: ORAGUARD® 290/293
- Sea water resistance (DIN EN ISO 9227). Adhered to aluminium; after 100h/35° C no variation

Also available in a *RapidAir*® (RA) version. The *RapidAir*® technology allows a rapid and bubble-free application.

Boat Exteriors - Screen Printing

Print Polyester

ORACAL® 301F

For screen printed decorative labels and doming applications

Product benefits include:

- Polyester film (50 micron)
- White gloss, chrome or chrome brushed
- Modified solvent polyacrylate, permanent
- Sea water resistance (DIN EN ISO 9227). Adhered to aluminium; after 100h/35° C no variation

Digital Printing Polyester

ORAJET® 3301F

For digitally printed decorative labels and doming applications.

Product benefits include:

- Polyester film (50 micron)
- Chrome or chrome brushed
- Modified solvent polyacrylate, permanent

Boat Interiors - Solid Colour Applications

The high quality films from ORAFOL create unlimited design possibilities for boat interiors; from wall art decorations, privacy instalments on glass partitions, textured design enhancements on dashboards – to photoluminescent exit signs. Different applications require different solutions, and within the range from ORAFOL you will find all the specialised films needed. Furniture and construction parts do not have to be removed when being refurbished.

Wall Art

ORACAL® 638

The wall art film will provide room for personality and individuality to any boat interior.

Product benefits include:

- Soft PVC film (80 micron)
- Matt surface
- 57 colours
- Polyacrylate, easily removable

The ORACAL® 970/975 are also perfect for applications to the interior of the boat. For product details please see pages 4/5.



Photoluminescent Signs and Labelling

For markings of danger spots and decorative elements that are visible at night

Luminescent Cast

ORAJET® 3930

Digital printing film with photoluminescent properties, for indoor and outdoor markings.

Product benefits include:

- Three-layered, light yellow, cadmium-free, premium cast PVC film (150 micron)
- Glossy surface
- Ink-jet printing with solvent based inks, UV- or Latex inks
- Recommended laminating film: ORAGUARD® 293
- Solvent polyacrylate, permanent

Luminescent Cast

ORALUX® 9300

Extreme durability and dimensional stability also in corrugations and on rivets.

Product benefits include:

- Three-layered, light yellow, cadmium-free, high performance cast PVC film (150 micron)
- Screen printing
- Glossy satin surface
- Solvent polyacrylate, permanent

Boat Interiors - Screen Printing Metallised Films

For decorative labels, name- and technical plates, decorations and symbols

Ultraleaf Cast

ORACAL® 383

Unique pressure sensitive film for lettering, marking and decoration of windows and signs with highest requirements for long outdoor durability.

Product benefits include:

- Metallised cast alkyd resin film (85 micron)
- High-gloss finish
- 3-dimensional embossed in chrome and glossy gold
- Solvent polyacrylate, permanent

Polyester Film

ORACAL® 351

This high-gloss metallic film is available in a double-sided version, providing outstanding effects when applied onto transparent surfaces.

Product benefits include:

- Metallised polyester film (23 micron / 50 micron)
- Chrome, matt chrome, chrome-brushed, gloss gold on both sides and rose gold
- Top coated surface for printing
- Solvent polyacrylate, permanent

Print Polyester

ORACAL® 352

Print polyester for labels and decorations

Product benefits include:

- Transparent, white or metallised polyester film (23 or 50 micron)
- Transparent, white and in chrome, matt chrome, brushed chrome and gold
- Outstanding dimensional stability and a good ageing behaviour
- Solvent polyacrylate, permanent

ORACAL® 301F and ORAJET® 3301F are also perfect for interior applications (see page 7).

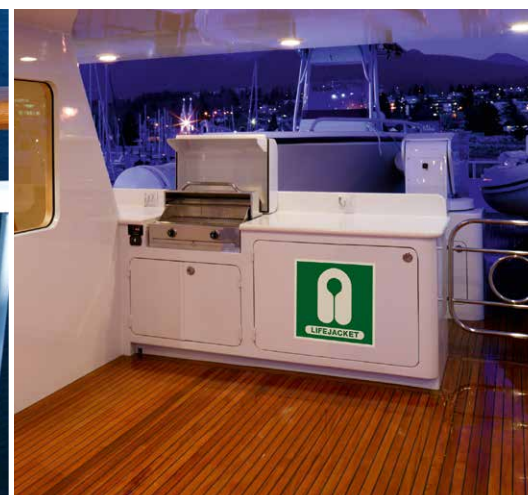
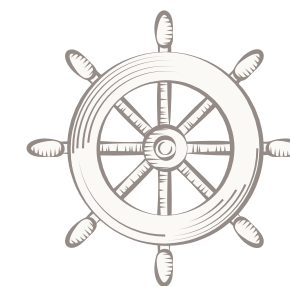
Digital Printing Polyester

ORAJET® 3350

For digitally printed labels and decorations

Product benefits include:

- Metallised polyester film (50 micron)
- Chrome
- Solvent polyacrylate, permanent



Boat Interiors - Glass Decorations

Whether for artistic effect or simply to create privacy, the range of glass decoration films by ORAFOL is the perfect cost-effective alternative to traditional etched glass.

Etched Glass Film

ORACAL® 8410

Used for decorative designs on windows and glass doors with an etched or sanded glass effect.

Product benefits include:

- Monomeric PVC film
- Available in silver grey
- Medium glossy surface prevents unwanted light reflections
- Wet application is recommended
- Solvent polyacrylate, permanent



Etched Glass Film

ORACAL® 8510/8510RA

Film in gold and silver-grey for decorative designs on windows and glass doors with an etched or sanded glass effect.

Product benefits include:

- Polymeric PVC film
- Gold and silver-grey, coarse and fine texture
- Medium glossy surface prevents unwanted light reflections
- Available as 8510 for wet application and 8510RA with *RapidAir®* for dry application
- Solvent polyacrylate, permanent



Etched Glass Film

ORACAL® 8610

Special PVC film with a fine etched glass look for high-quality glass decoration.

Product benefits include:

- Durable special PVC film in silver grey
- Also suitable for outdoor use
- Medium glossy surface prevents unwanted light reflections
- Wet application is recommended
- Solvent polyacrylate, permanent

Dusted Glass Film

ORACAL® 8710

Creates the look of a rough glass surface.

Product benefits include:

- Polymeric PVC film
- Milky, translucent grey
- Medium glossy surface and the coarse structure prevent unwanted light reflections
- Wet application is recommended
- Solvent polyacrylate, permanent

Frosted Glass Cast

ORACAL® 8810

For extra high quality glass decoration of glass partitions and glass doors. Five soft colours available with a sparkling effect.

Product benefits include:

- Cast PVC film with very good weather resistance and UV stability
- Eye-catching, glamorous sparkling effects
- Medium glossy surface and the coarse structure prevent unwanted light reflections
- Wet application is recommended
- Solvent polyacrylate, permanent



Digital Printing Film

ORAJET® 3851

For digitally printed glass decorations of glass partitions and glass doors.

Product benefits include:

- Special polymeric PVC film (80 micron)
- Silvergrey with a fine structure
- Wet application is recommended
- Solvent polyacrylate, permanent

Surface Guard Films

Use an ORAGUARD® paint protection film for extra protection of areas exposed to mechanical stress. This will ensure long-term durability of boat surfaces. The films are all highly transparent, glossy, highly UV resistant, and with excellent tear strength.

Paint Protection Films

ORAGUARD® 2815GF, ORAGUARD® 2815GF+, ORAGUARD® 2815MF+

Surface-functionalized polyurethane film, transparent, optionally matt or glossy with excellent UV resistance and self-healing surface. The surface is particularly resistant to chemicals. The migration of dirt into the film is effectively prevented by the surface coating, making the paint protection film resistant to yellowing. The surfaces of ORAGUARD® 2815GF+ and ORAGUARD® 2815MF+ paint protection films are also characterized by low surface energy (lotus effect).

ORAFOL® Cleaning, Care and Application Products

Give your new decor the best possibilities to last

The series of ORAFOL® after care products have been specifically developed for proper surface treatment of the wrapping films from ORAFOL. All the products have been engineered to enable consistent, excellent results. With the ORAFOL® cleaning and care agents you can be sure that you are always working with professional treatment products for your boat. The products are supplied in versions for glossy or matt surfaces.

Product	Type	Size
Intensive Cleaner	For glossy car wrapping films	500 ml
Intensive Cleaner	For matt car wrapping films	500 ml
Long-Lasting Seal	For glossy car wrapping films	500 ml
Long-Lasting Seal	For matt car wrapping films	500 ml
ORAFOL Ceramic Coating	Ceramic-polymer coating for ORAFOL car wrapping and paint protection films	50 ml
ORAFOL Application Gel	Application of self-adhesive graphic films requiring wet application process	1000 ml

Please refer to the full application instructions on www.orafol.com





With the high-quality graphic films from ORAFOL, there are endless application possibilities for exploring creativity and individual designs within the maritime world. Any low energy surfaces on e.g. Jet Skis, kayaks, surfboards and much more can be decorated. Special films are also available where very high-tack is required, or applications are to be done over very rough surfaces such as hammerschlag.

Contact ORAFOL and let us guide you to the best products for your specific application.

Safety at sea - Retroreflective films

Since 1980 our retroreflective materials have been used at sea to improve detection during night-time search and rescue missions. The microprismatic technology lengthens the detection sighting distance compared to traditional reflective materials. The FD tapes comply with SOLAS/IMO requirements and are approved by the European BV as well as the US Coast Guard.

ORALITE® FD 1403

For harsh maritime applications, e.g. sew on PFDs and spray-wear, as well as devices and equipment with rigid substrates such as steel and aluminium.

Product benefits include:

- Retroreflective microprismatic tape
- Silver colour
- Pressure sensitive adhesive or textile backing
- No risk of water penetration
- Designed to withstand continuous immersion in sea water and extreme temperatures
- IMO Res. A.658(16) Type I and II

ORALITE® FD 1404

Flexible marine tape for inflatable devices, inflatable PFDs and immersion suits.

Product benefits include:

- Retroreflective microprismatic tape
- Flexible
- Silver colour
- Pressure sensitive adhesive backing
- No risk of water penetration
- Designed to withstand continuous immersion in sea water and extreme temperatures
- IMO Res. A.658(16) Type I

ORALITE® VC 310 Marine

Retroreflective film for application to rigid boat surfaces, visible at distances of more than one kilometer.

Product benefits include:

- Retroreflective microprismatic film
- Red, yellow, blue and green
- Pressure sensitive adhesive backing
- Wide widths available (775 mm)



Product Overview – Marine applications

Films	Product	Short name	Front material	Colours / surfaces Gloss (G), Matt (M), Supermatt (SM)	Adhesive	Covering material	Recommended lamination film (where applicable)	Recommended application tapes	Area of use	Adhesive Power	Minimum appl. Temp.	Service life for marine applications ¹
CAD/CAM	ORACAL® 951	Premium Cast	Premium cast PVC film 50 micron	colours (G) Black+white also in matt (M)	Solvent polyacrylate permanent	Special silicone coated paper with excellent weeding properties 137 g/m²		ORATAPE® HT 95, LT 52, LT 95, MT 52, MT 72, MT 80P, MT 95	Outdoor and indoor use. For full colour wrapping, or single colour decals.	18 N/25 mm	> +8° C	Black/white: 8 years Transparent/coloured: 6 years, Metallic: 4 years selected colours*: 2 years
	ORACAL® 751C	High Performance Cast	High-performance cast PVC film 60 micron	colours (G) Black+white also in matt (M)	Solvent polyacrylate permanent	Special silicone coated paper with excellent weeding properties 137 g/m²		ORATAPE® HT 95, LT 52, LT 95, MT 52, MT 72, MT 80P, MT 95	Outdoor and indoor use. For full colour wrapping, or single colour decals.	18 N/25 mm	> +8° C	Black/white: 6 years Transparent/Coloured: 5 years, Metallic: 3 years Gold L, Brilliant Blue L: 1 year
	ORACAL® 638	Wall Art	Soft PVC film 80 micron	colours (M)	Polyacrylate removable	Silicone coated paper 135 g/m²		ORATAPE® LT95	Indoor use. For short term wall decorations.	6 N/25 mm	> +10° C	2 years
	ORACAL® 383	Ultraleaf Cast	Cast metallised film 85 micron	Chrome Gold (G)	Solvent polyacrylate permanent	Special silicone coated paper 135 g/m²		ORATAPE® HT 95, LT 52, LT 95, MT 52, MT 72, MT 80P, MT 95	Outdoor and indoor use. Metallised film for decorative labels, name- and technical plates, decorations and symbols. 3 dimensional embossed texture.	16 N/25 mm	> +10° C	5 years
	ORACAL® 351	Polyester Film	Metallised polyester film 23/50 micron	Chrome (G+M) Chrome-brushed Rose gold Gloss gold on both sides	Solvent polyacrylate permanent	Special silicone coatedpaper with excellent weeding properties 137 g/m²		ORATAPE® HT 95, LT 52, LT 95, MT 52, MT 72, MT 80P, MT 95	Outdoor and indoor use. Metallised film for decorative labels, name- and technical plates, decorations and symbols. Available as double sided gold for applications that are seen from both sides.	12 N/25 mm	> +8° C	2 years Gold (G): 1 year
	ORACAL® 8410	Etched Glass Film	Special PVC film 70 micron	Silver-grey	Polyacrylate permanent	Special silicone coated paper with excellent weeding properties 137 g/m²		ORATAPE® HT 95, LT 52, LT 95, MT 52, MT 72, MT 80P, MT 95	For simple interior and exterior glass decor applications, especially store windows and doors.	18 N/25 mm (on glass) 16 N/25 mm (on acrylic glass)	> +8° C	3 years
	ORACAL® 8510	Etched Glass Film	Special PVC film 80 micron	Gold Silver-grey	Solvent polyacrylate permanent	Special silicone coated paper with excellent weeding properties 137 g/m²		ORATAPE® HT 95, LT 52, LT 95, MT 52, MT 72, MT 80P, MT 95	For interior and exterior glass decor applications, especially store windows and doors.	18 N/25 mm (on glass) 16 N/25 mm (on acrylic glass)	> +8° C	7 years
	ORACAL® 8610	Etched Glass Film	Special PVC film 60 micron	Silver-grey	Solvent polyacrylate permanent	Special silicone coated paper with excellent weeding properties 137 g/m²		ORATAPE® HT 95, LT 52, LT 95, MT 52, MT 72, MT 80P, MT 95	For high-quality interior and exterior glass decor applications, especially store windows and doors.	18 N/25 mm (on glass) 16 N/25 mm (on acrylic glass)	> +8° C	10 years
	ORACAL® 8710	Dusted Glass Cal	Polymer PVC film 70 micron	Translucent grey	Solvent polyacrylate permanent	Special silicone coated paper with excellent weeding properties 137 g/m²		ORATAPE® HT 95	Developed for decorative glass or mirror design elements, to achive a translucent etched glass appearance. Great for shop windows, room dividers and glass doors.	18 N/25 mm (on glass) 16 N/25 mm (on acrylic glass)	> +8° C	7 years
	ORACAL® 8810	Frosted Glass Cast	Cast PVC film 80 micron	colours (sparkling effect)	Solvent polyacrylate permanent	Special polyester film, 100 micron		ORATAPE® HT 95, MT 95, MT 52, MT 72	Long-term indoor and outdoor decorative design; developed for long-term decorative sparkling effects on glass and glass like shop windows and doors.	16 N/25 mm	> +8° C	7 years
Wrapping	ORACAL® 970RA RapidAir®	Premium Wrapping Cast Shift Effect Special Effect Structure	High-performance cast PVC film 110 micron	glossy, matte and textured	Solvent polyacrylate repositionable permanent	PE-coated RapidAir® silicone paper 145 g/m2		n/a	Outdoor and indoor use. For full colour wrapping, or single colour decals. The RapidAir® technology enables easy and quick application, without air inclusion.	16 N/25 mm	> +15° C	Black, white 10 years Coloured: 8 years Metallic: 4 years selected colours*: 2 years
	ORACAL® 970RA+ RapidAir® ProSlide	Premium Wrapping Cast Shift Effect Special Effect	High-performance cast PVC film, 110 micron	glossy, matte	Solvent polyacrylate repositionable permanent	PE-coated RapidAir® silicone paper 158 g/m2		n/a	Outdoor and indoor use. For full colour applications. Shade shifter effect: colour will change depending on viewing angle. The RapidAir® technology enables easy and quick application, without air inclusion.	12 N/25 mm	> +15° C	Black, white 10 years Coloured: 8 years Metallic: 4 years
Printing	ORACAL® 352	Print Polyester	Polyester film 23/50 micron	Transparent, Chrome (M+G), Gold (G), Gold on both sides (G), White, Chrome brushed	Solvent polyacrylate permanent	PE coated paper one side siliconised 160 g/m²		ORATAPE® LT 95, MT 95	Outdoor and indoor use. Printing film for decorative labels, name- and technical plates, decorations and symbols.	12 N/25 mm	> +8° C	2 years Gold (G): 1 year
	ORACAL® 301F	Print Polyester	Polyester film 50 micron	White (G) Chrome Chrome brushed	Modified solvent polyacrylate permanent	Polyester film siliconised 100 micron		ORATAPE® MT 95	Outdoor and indoor use, as well as doming. Printing film for decorative labels, name- and technical plates, decorations and symbols.	25 N/25 mm	> +8° C	2 years
	ORALUX® 9300	Luminescent Cast	Three-layered, light yellow, cadium-free high-performance PVC film, 150 micron	Light yellow (G satin)	Solvent polyacrylate permanent	PE coated paper one side siliconised 143 g/m²		ORATAPE® MT 95	Indoor use. Typically unprinted markings for danger spots and decorative elements that are visible at night.	18 N/25 mm	> +8° C	5 years
Digital Printing	ORAJET® 3951	Digital Printing Cast	Premium cast PVC film 55 micron	White (G) Transparent (G)	Solvent polyacrylate repositionable permanent, grey or transparent	PE coated paper one side siliconised, 143 g/m²	ORAGUARD® 293F / 293 / 290 / 290F	n/a	Outdoor and indoor.	18 N/25 mm	> +8° C	White: 10 years Transparent: 8 years
	ORAJET® 3350	Digital Printing Polyester	Polyester film 50 micron	Chrome	Solvent polyacrylate permanent	PE coated paper one side siliconised, 143 g/m²		ORATAPE® LT 95, MT 95	Outdoor and indoor use. Digital printing film for decorative labels, name- and technical plates, decorations and symbols.	12 N/25 mm	> +8° C	2 years
	ORAJET® 3851	Digital Printing Film	Polymeric PVC film 80 micron	Silvergrey with fine structure (090)	Solvent polyacrylate permanent	Double sided PE coated paper, one side siliconised, 143 g/m²			Digital printing glass decor film, for decorative design of shop windows and glass doors.	18 N/25 mm	> +8° C	7 years
	ORACAL® 3301F	Digital Printing Polyester	Polyester film 50 micron	Chrome Chrome brushed	Modified solvent polyarcylate, permanent	Polyester film siliconised, 100 micron		ORATAPE® MT 95	Outdoor and indoor use, as well as doming. Digital printing film for decorative labels, name- and technical plates, decorations and symbols.	25 N/25 mm	> +8° C	2 years
	ORAJET® 3930	Digital Printing Luminescent Cast	Three-layered, light yellow, cadium-free PVC film, 150 micron	Light yellow (G)	Solvent polyacrylate permanent	PE coated paper one side siliconised 143 g/m²	ORAGUARD® 293	ORATAPE® HT 95, LT 52, LT 95, MT 52, MT 72, MT 80P, MT 95	Outdoor and indoor use. For digitally printed marking signs for danger spots and decorative elements that are visible at night.	18 N/25 mm	> +8° C	5 years
Paint Protektion	ORAGUARD® 2815GF+	Paint Protection Film	Top-coated polyure- thane film, 160 micron	Transparent (G) with super- hydrophobic surface	Solvent polyacrylate, permanent	Matt PET, 75 micron		n/a	For application as surface guard films to protect surfaces against mechanical influences.	17 N/25 mm	> +10° C	10 years
	ORAGUARD® 2815MF+	Paint Protection Film	Top-coated polyure- thane film, 160 micron	Transparent (M) with super- hydrophobic surface	Solvent polyacrylate, permanent	Matt PET, 75 micron		n/a		17 N/25 mm	> +10° C	10 years
	ORAGUARD® 2815GF	Paint Protection Film	Top-coated polyure- thane film, 160 micron	Transparent (G)	Solvent polyacrylate, permanent	Matt PET, 75 micron		n/a		17 N/25 mm	> +10° C	10 years

¹ Service lives given here are only valid for vertical application in climate zone 1 in marine environments. For other climate zones and more details see the application instructions.
For printing materials, the service lives given are only valid for unprinted films.

* Copper, Orient brown metallic, Bronze, Pyrite, Graphite metallic, Red gold L metallic and Nacre
** Brilliant blue L, copper, gold, metallic, bronze, pale gold, pyrite, redgold L, foliage green metallic, steppe green metallic

Reflective Materials

Product	Short name	Product Approval	Colours / surfaces	Backing	Approval	Area of use	Minimum appl. Temp.	Widths (mm)	Lengths (m)
ORALITE® FD 1403	Imo	IMO resolution A.658(16) Type I and II	Silver (G)	PSA or textile	U.S. Department of Transportation specification USCG 46 CFR, section 164.018 and International Maritime Organisation (IMO) resolution A.658(16) Type I & II.	Reflective material for life rafts, personal flotation devices and spray-wear.	> 15° C	50	50
ORALITE® FD 1404	Imo Flex	IMO resolution A.658(16) Type I	Silver (G)	PSA or textile	U.S. Department of Transportation specification USCG 46 CFR, section 164.018 and International Maritime Organisation (IMO) resolution A.658(16) Type I.	Flexible reflective marine tape for inflatable devices, inflatable personal flotation devices and immersion suits.	> 15° C	50	50
ORALITE® VC 310	Marine	n/a	Red (G), Yellow (G), Blue (G), Green (G)	PSA	n/a	Coloured reflective film visible at distances of more than 1 km. For application onto rigid surfaces, e.g. bouys or boats.	> 15° C	775	45,7



Engineered to Achieve Perfection™

Marine applications

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