International®
yachtpaint.com

boat painting and product guide

International
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For over a century we've been creating the most innovative paint solutions to protect, beautify and improve the performance of all types of boats.

No matter where you are, in whichever waters around the globe, you'll find high performance coatings backed by meticulously researched knowledge and support from International Paint.

Whether we're in the lab researching and developing new products, or at sea putting our products to the test, we're in our element. Getting the chemistry right is critical to us, as is knowing the subtle differences between people and water all over the world. Wherever there are boats, we're right at the heart of the matter, making connections, solving problems, sharing knowledge…

Our World is Water

We are happy to share our knowledge with you and help with any questions, if you require further assistance you can find it at:

Australia: 1800 251 431
New Zealand: 0800 808 807
Pacific Islands: + 61 7 3892 8888

tech.support@yachtpaint.com

yachtpaint.com

topsides, decks, bilges and cabins

caring for your wood

Cetol®

antifouling

fibreglass – blister repair and prevention

construction and repair with epoxies

boatcare

everything else you need to know

* check out our alphabetical index at the back of our brochure

3 EASY STEPS TO A PERFECT FINISH

OUR MOST FREQUENTLY ASKED TOPSIDES QUESTION:

"How can I make my decks slip-resistant?"

'International offers two solutions for re-finishing a slip-resistant deck:

Stir and apply – Interdeck

Our ready to use, slip resistant, single-component finish that can be applied over GRP or any other substrates following the application of an International topside primer.

Mix your own slip-resistant finish

Any International topside finish can be transformed into a slip-resistant deck finish by the addition of International Intergrip. This additive consists of man-made irregular shaped plastic particles. They have a low tendency to collect dirt, and excellent slip-resistant properties.
Apply two coats of paint with International Intergrip mixed in.

WHAT IS DOI AND WHY SHOULD I CARE?

DOI is an acronym for 'Distinction of Image'. It refers to the clarity of the coating, as measured by its ability to accurately reflect the image of a given object. DOI can be measured on a numeric scale. DOI is generally considered in the industry to be a quality indicator, as it measures the smoothness of a coating and the 'wetness' of the gloss.

Most people have an everyday measure of DOI when they look at any painted surface. A glossy, high quality surface has a higher DOI than a muddy, drab surface.

topsides, decks, bilges and cabins

PAINT FINISHES

Apart from providing an enhanced cosmetic finish to your boat, paints provide a barrier of protection against the elements that will attack the surface during the season: sea, rain, wind and sun.

THE 3 MOST CRITICAL QUESTIONS FOR ANY PAINTING PROJECT

1) What preparation is necessary?

The most critical aspect of a painting job is preparation. Poor surface preparation will always show through the final coat; will reduce the effectiveness of the coating system and can potentially lead to the premature failure and separation of the coating from the substrate. As a guide you should be aware that you will need to spend up to 80% of the job on preparation and priming, in order to achieve a first class finish of which you will be proud.

2) Does the substrate matter?

Yes! Quite simply, if you are painting onto metal or glass fibre you can use any of our paint systems. However, for wooden substrates, your choice may be different. All one-part paint systems are suitable for all wood constructions.

Do not use two-part polyurethane on carvel and clinker (or lap strake) constructions.

The wood in these flexible constructions moves as the moisture content varies, leading to cracking. For more stable wood systems – like double diagonal planking, cold or hot moulded veneers, plywood and strip planking, where epoxy or Resorcinol type adhesives have been used, you can use any of our systems.

3) What repair and upkeep is required?

Areas where there is considerable foot traffic or harsh abrasion, such as gunwale rails and coaming sides, will need frequent repair to keep them in pristine condition. Two-part polyurethanes offer excellent resistance to abrasion, but can still wear through in excessive circumstances. Our one-part systems are easier to touch up than our high performance, two-part systems, and may be more suitable for these areas.

The perfect paint for your project

Use this guide to our topside paint products, which answers the most common customer questions, to help you pick the perfect paint for your project.

IMPORTANT: *Use the correct primer for your choice of project*

Top Tip

SOLUTION CHOICES / COMMON PROBLEMS	PERFECTION	BRIGHTSIDE®	INTERDECK
	• Two-part polyurethane gloss • Professional finish from a DIY paint • High gloss • Durable • Low maintenance	• Hard, high gloss one-part polyurethane finish • With Teflon® for easy cleaning, resistance to staining and added abrasion resistance • Range of bright, crisp colours	• Slip resistant polyurethane deck paint • Contains fine mineral additive for hard wearing, non-slip surface • Suitable for all substrates • Apply straight from the can with brush or roller
Number of packs	2	1	1
Thinners & cleaners	Polyurethane Retarder Thinner No. 9	Enamel Thinner No. 1	Enamel Thinner No. 1
Warm weather Thinners	Brushing Thinner No.6	Brushing Thinner No. 6	Enamel Thinner No. 1
Which product is the easiest brushing?	✓	✓	✓
Which product should I use on my deck to improve slip resistance?			✓
Which product gives the ultimate hardness and high gloss 'wet look'?	✓		
I am not an experienced painter, so which paint should I use when I repaint my whole boat inside and out?		✓	
Which paint is best for bilge areas subjected to oil, grease and possibly some diesel fuel spillage?	✓		
Which two-part paint will be the easiest for me to use?	✓		
Which paint is the best around a galley area subjected to lots of hard wear and spillages?	✓		
Which paint could I put on myself for my racing dinghy that needs a really hard tough paint because of all the hard knocks it takes?	✓		
Which paint is available in small cans and doesn't require any mixing with hardeners or activators before using?		✓	✓
I have not had a lot of experience brushing/rolling paints so which ones could I use for my hull and topsides?	✓	✓	

KEY: ✓ Excellent for this purpose

BEWARE: NOTE THAT BRIGHTSIDE WHITE SHADES MAY, IF USED IN AREAS NOT EXPOSED TO SUNLIGHT (INSIDE LOCKERS, BILGES AND OTHER INHERENTLY DARK AREAS) SHOW A VISIBLE TENDENCY TO YELLOW. IN OTHER COLOURS THE EFFECT IS MASKED.

BEWARE: SINGLE PART PAINTS WILL NOT ALWAYS DRY IF APPLIED OVER SOME SEALANTS. TEST ON A SMALL AREA FIRST.

Handy Specifications for Previously Unpainted Surfaces

ONE-PART PAINT SYSTEMS

This preparation scheme provides a good level of protection

STAGE	PRODUCT	GRP & EPOXY	ALUMINIUM	WOOD	STEEL	WORK TIME*	OVERCOATING TIME**
CLEAN	Suitable liquid detergent	YES	YES	∅	YES	45	
ABRADE		180–220 grade	150–220 grade	80–180 then 280 grade	Mechanically	1–2	
OPTIONAL SEAL	Everdure	∅	∅	2–4	∅	1–2	See product label
FILLER	Epoxy Filler*** (if required)	YES	NO	YES	NO	2–4	See product label
SURFACE PRIMER	Etch primer	∅	1	∅	∅	30	See product label
PRE PRIMER	Yacht Primer	∅	∅	1 Thinned 10–15%	∅	2	4
PRIMER	Yacht Primer	1–2 ****	3–4	3–4	3–4	1	See product label
UNDERCOAT	Prekote Undercoat	1–2	1–2	1–2	1–2	1	16
TOPCOAT	Brightside	2–3	2–3	2–3	2–3	2	12
					TOTAL PROJECT TIME:	3 WEEKENDS	

* Average time to apply one coat to average sized boat of 8m/25 feet.
** Minimum wait time between coats or between overcoating with the next step in the system, at a temperature of 23˚C.
Please consult product data sheets (available from International) for overcoating times at different temperatures.
Data sheets may also be viewed via our website yachtpaint.com.
*** Refer to page 47 for choice of filler.
**** On old aged GRP up to two coats of primer are recommended to seal the surface.

KEY: No.of coats Minutes Hours ∅ Do not use for this purpose

TWO-PART PAINT SYSTEMS

This preparation scheme provides the maximum level of protection available

STAGE	PRODUCT	GRP & EPOXY	ALUMINIUM	WOOD	STEEL	WORK TIME*	OVERCOATING TIME**
CLEAN	Suitable liquid detergent	YES	YES	∅	YES	1	
ABRADE		180–220 grade	Mechanically	80–180 then 280 grade	Mechanically	2–4	
OPTIONAL SEAL	Everdure	∅	∅	1	∅		See product label
FILLER	Epoxy Filler***	YES	∅	YES	∅	1	See product label
PRIMER	Interprotect®	∅	1	1	1	1	3
FILLER	Epoxy Filler***	YES	YES	YES	YES		
PRIMER	Interprotect®	3	3	3	3	1	3
UNDERCOAT	Perfection Undercoat	1–2	1–2	1–2	1–2	1	10
TOPCOAT	Perfection	1–2	1–2	1–2	1–2	2	16
					TOTAL PROJECT TIME:	2 WEEKENDS	

* Average time to apply one coat to average sized boat of 8m/25 feet.
** Minimum wait time between coats or between overcoating with the next step in the system, at a temperature of 23˚C.
Please consult product data sheets (available from International) for overcoating times at different temperatures.
Data sheetsmay also be viewed via our website yachtpaint.com.
*** Refer to page 47 for choice of filler

KEY: No.of coats Minutes Hours ∅ Do not use for this purpose

How to paint like a professional

Top Tip

REPAINTING EXISTING PAINTED SURFACES

To achieve a good finish, the condition of the existing paint work should be thoroughly checked to determine the extent of the preparation required. Look for areas of damage, separation or peeling of the paint or any other signs that the paint does not have a firm hold on the substrate.

1	Clean the hull with a suitable liquid detergent to remove any contamination.
2	Re-inspect the hull to ensure no damage has been missed.
3	If the paint is in good condition, sand with 280–320 grade wet or dry paper and when dry, wipe with a dust wipe to remove any dust residue.
4	If the paint shows localised areas of damage, these areas can be repaired using Epoxy Filler (see page 47).
5	If the previous coating is cracking, peeling or generally showing signs of separation over the whole area, it should be totally removed. Typical methods are scraping, sanding, grinding and/or using a chemical paint stripper.
6	Any exposed substrate should be primed and undercoated using the specifications listed for the appropriate substrate. The rest of the sanded back paint system will also require at least one coat of undercoat.
7	Application of an undercoat will provide additional depth of colour and durability to the finished surface. When using a single part finish we recommend mixing the second coat of undercoat 50:50 with the topcoat. This will create a satin finish which highlights final imperfections which can thus be sanded smooth. This procedure will also help achieve greater gloss and colour depth in the topcoat.

TESTING FOR COMPATIBILITY: *To test if an existing topside paint product is compatible with our two-part polyurethane finish; tape a cloth soaked in International Retarder Thinners #9 to the previously painted substrate for 24 hours. If the surface is softened, it is probably not compatible. In this instance only a one-part paint product should be applied.*

Top Tip

APPLYING THE FINISH

1

APPLYING BY BRUSH

Use the largest brush possible. Long flexible bristles are best for gloss paints. When applying by brush a good technique is the 'Union Jack' method. Paint is applied to the surface with a diagonal brushing action from the left and right (Step 1). This is then spread further with horizontal strokes (Step 2) before finally 'laying off' with light vertical strokes (Step 3). This results in any brush marks being able to flow out to give the best possible finish.

2

APPLYING WITH ROLLER AND BRUSH

Our products are formulated so that a great gloss finish can be obtained through application with a solvent resistant, high density/small cell size foam roller. This will minimise the formation of bubbles in the surface that can occur with mohair and large cell foam rollers. The paint applied will be thinner and so more coats may be required.

The roller is used to apply paint to the surface and the pad or brush is used to create a smooth surface by 'tipping off.' This works particularly well when two painter's work side by side.

Always test your choice of application method, to establish if it provides the finish you require.

3

WARM/HOT WEATHER APPLICATION

In warm or hot weather ensure you apply paint under shade and not in direct sunlight or in windy conditions. To further improve the brushability of Brightside use small additions as per the label instructions of International Brushing Thinners No 6.

SANDING GUIDE COAT

Surface preparation is the most important job when it comes to obtaining the best possible finish. Sanding Guide Coat is used to highlight fine sanding and scratch marks into easily visible blue lines that can be sanded away as you progress from coarse to fine sand paper. It saves time and helps you achieve the best possible result.

TOPSIDES, DECKS, BILGES & CABINS

FILLING HOLES, VOIDS AND NICKS ABOVE & BELOW THE WATERLINE

The quality of your topside finish is crucially dependant upon preparation. Filling in small areas of damage is an important part of this. Your boat is not only under attack from the elements. Damage may also result from collision, abrasion and other mechanical damage. Correct use of fillers is essential if the job is to last.

For further information refer to pages 47 and 48.

PRIMERS AND UNDERCOATS

Throughout this guide there are references to various primers and undercoats. The following brief descriptions of the various products will aid in your understanding of them.

ETCH PRIMER: A two-part etching primer for application to aluminium and lead before application of the chosen paint system. May be used above and below the waterline.

PA10®: A quick drying primer for application to props and shafts before applying antifouling. Available in a convenient aerosol can.

PRIMOCON: A quick drying single part vinyl primer for use below the waterline only, on most substrates but in particular steel and timber. Use typically before application of antifouling paint. Not a sandable product.

YACHT PRIMER: A single part conventional primer for use on predominantly timber or GRP surfaces. May be used above and below the waterline. Excellent sanding properties.

PREKOTE: A single part undercoat for above waterline use only. Typically used over Yacht Primer before applying Brightside or Interdeck. Excellent sanding properties.

INTERPROTECT®: A two-part epoxy primer used above and below the waterline for most substrates. High build and good-sanding properties enables it to fill minor blemishes.

PERFECTION UNDERCOAT: A two-part polyurethane undercoat for use above the waterline only. Excellent brushing, opacity and sanding properties. It is the ideal product to use over Interprotect® before applying any two pack polyurethane product. Also helps to enhance the gloss level of the finish coats.

SOME FINAL TIPS ON APPLYING OUR TWO-PACK HIGH PERFORMANCE SYSTEMS

Perfection is a high quality, easy to apply by brush and roller, two-part polyurethane that provides a high gloss durable finish suitable for a wide range of marine applications. Available in a range of standard colours.

The air temperature will affect the time you have to work with the paint, but as a rough guide for polyurethanes, you will have about two hours in hot weather (about 25–30°C) and up to four hours in cooler conditions (around 10°C). Ideally, the temperature should be around 15°C with low humidity. In warmer conditions, thin with International Retarder Thinners #9 or International Brushing Thinner #6 (see page 6 of this guide) to make the paint easier to use by brush or roller. (Contact International Paint for information on spraying).

Once mixed, Perfection begins to cure and harden. After mixing you should leave the paint to stand for 20 minutes to allow the bubbles generated by mixing to disperse. Apply by any of the painting methods on page 11. Once topcoat painting is complete, it should be kept dry for at least 24 hours as high humidity will result in under-curing and loss of gloss.

A further 7–10 days should be allowed for full curing to take place. Only after that time will the paint achieve its maximum resistance to abrasion. Particular care should be taken not to lift a yacht in slings before the paint has fully cured.

PAINTING THE BILGES

1	Bilges can be painted with single or two-part systems using finish coats such as Brightside and Perfection or can be coated with Interprotect® in the case of GRP hulls to aid in the prevention of osmosis, see relevant section in this booklet. You need to decide which is best suited to your particular boat. If the bilges are generally clean and dry you can use either. If they are generally wet and greasy or oily Perfection would be the better choice. Obviously if they are already painted you may be restricted in choice.
2	You must in all cases ensure the bilges are clean and dry by washing with Surface-Prep and drying thoroughly. In the case of GRP refer to page 49 and the preparation guidelines for GRP surfaces.
3	Apply chosen system using appropriate primers and undercoats for the chosen finish coats.
4	As pale colours and white single pack finishes may yellow in the dark, they may not be suitable for use in some interior situations.

HINTS TO HELP YOU ACHIEVE A PERFECT RESULT EVERY TIME

PAINT FINISHES

- ✓ Ensure an even spread by holding the brush at 45° – this minimises brush marks.
- ✓ The best finish is achieved on large areas by two people, one to apply the paint, the other following immediately behind to smooth the finish.
- ✓ Clean or change brushes every 20 minutes or so.
- ✓ Always use lint-free cleaning cloths.
- ✓ Stir the can occasionally during the work.
- ✓ Dampen the ground with water before commencing painting to avoid any dust rising.
- ✓ Use a worn brush for the final coat, this will ensure less brush marks.
- ✓ Painting is best achieved on warm, dry mornings – cold weather retards drying and damp will spoil the gloss.
- ✓ Never apply direct from the can as this will introduce contamination.
- ✓ Always pour the amount of paint that you expect to use at any one time into a separate container.

How much paint do I need?	– POWER					– SAIL				
Overall Length *(metres)*	6.1	7.6	9.1	10.7	12.2	6.1	7.6	9.1	10.7	12.2
Overall Length *(feet)*	20	25	30	35	40	20	25	30	35	40
Beam *(metres)*	1.5	2.5	3.5	4.0	4.5	2.0	2.4	3.5	3.7	4.0
Freeboard Height *(metres)*	1.0	1.25	1.25	1.5	1.5	0.75	1.0	1.25	1.25	1.5
Litres Required*	2.6	4.4	5.5	7.7	8.7	2.1	3.5	5.5	6.3	8.5

**Average amount, based on 2 coats.*

3 EASY STEPS TO A PERFECT WOOD FINISH

OUR MOST FREQUENTLY ASKED VARNISH QUESTION:

"What is the best varnish for interior and exterior wood?"

We have several varnishes to meet your needs. Exterior high gloss varnishes with excellent ultra-violet protection include: ***Perfection Varnish*** *– A two-part polyurethane designed to be an extremely durable clear coating for wood and epoxy surfaces.* ***Schooner® Tropical*** *– a traditional type varnish and* ***Goldspar® Original*** *an original polyurethane modified product. Both are single pack varnishes offering excellent all round performance.*

FOR INTERIOR USE ONLY:
Goldspar® Satin – *Has been designed for interior surfaces. It is a low sheen polyurethane varnish producing a flexible but very hard-wearing surface, that is resistant to scratching and abrasion.'*

So if you have an area to varnish that gets a lot of abrasion use Goldspar® Original or Perfection. If you are varnishing over a clear epoxy such as HT 9000 use Perfection.

UV PROTECTION

Varnishes have always been considered a mysterious blend of art and science but there are only five main ingredients that go into a top quality marine varnish – oil, resin, solvent, driers and additives. The trend in modern varnish technology that most directly affects the long-term durability of varnish is the use of additives specifically to combat the effects of UV energy. i.e. sunlight.

The first, and most commonly used additive is the UV absorber. UV absorbers diffuse the UV energy through the coating so that degradation of substrate is avoided.

International uses two additional additives to help protect the varnish from UV damage – surface stabilisers and antioxidants. Surface stabilisers work at the surface to repair damage from UV light by pulling together polymer segments. By keeping the surface stabilised, colour and gloss are maintained.

Antioxidants are used to combat photo-degradation and oxidation. This helps maintain colour stability and keeps the varnish from fading and becoming cloudy.

caring for your wood

VARNISH

Wood has a beauty of its own that a good varnish job will enhance and protect. The varnish you choose may be for a specific task or for a wide range of uses. Varnishes applied to your boat provide a barrier to protect against the elements that will attack the surface during the season – sea, UV radiation from the sun, but also rain and wind. The chosen varnish also enhances the natural appearance of the wood, thereby maintaining and even improving the value of the boat.

INTERNATIONAL'S 3 LAYERS OF UV PROTECTION

1) In paint, some protection is offered by colour pigments. In clear varnish no pigment exists. International's varnishes are specially designed to reflect ultra-violet radiation, and therefore have a longer life.

2) Our high performance Perfection Varnish, Schooner Tropical and Goldspar Original® products are boosted by UV absorbing and light stabilising agents which absorb radiation and convert it to less harmful wavelengths to protect the wood from UV attack.

3) Even with this protection some radiation can still penetrate the film, creating 'free radical' elements, which contribute to varnish breakdown. To counter this, we add HALS (Hindered Amine Light Stabilisers) to our varnishes, which effectively track down, isolate and neutralise these free radicals, extending the protective life of the varnish beyond the expectancy of other UV protection packages.

REMEMBER: *Like in most paint applications, preparation is the most difficult and important part of the project – and is likely to take up to 80% of the total work time.*

Top Tip

Visit our website for more information **– yachtpaint.com**

The perfect varnish for your project

If varnishing bare wood, thin your first coat of varnish by up to 15%. This first "penetrating coat" will soak into the wood, giving a better, smoother base for your varnish job, that will last longer.

Top Tip

Use this guide to our varnish products, which answer the most common customer questions, to help you pick the perfect varnish for your project.

	 PERFECTION VARNISH	 SCHOONER® TROPICAL	 GOLDSPAR® ORIGINAL	 GOLDSPAR® SATIN
Number of packs	2	1	1	1
Thinners & cleaners	Polyurethane Retarder Thinner No. 9	Enamel Thinner No. 1	Enamel Thinner No. 1	Enamel Thinner No. 1
Gloss level	Full high gloss wet look	High gloss	High gloss	Satin finish
Which varnishes will give me a professional looking finish?	***	***	***	***
Suitability for use on oily timbers such as teak and iroko	Use Everdure to seal the surface first	***	***	***
Ease of application in hot weather	**	***	***	***
Suitability for use around galley areas	***	*	*	**
Overall ease of brush application	*	***	***	***
Flow and levelling properties	***	***	***	***
Suitability for exterior work	***	***	***	
Suitability for interior work	***	***	***	***
Overall hardness, toughness and abrasion resistance	***	*	*	*
Resistance to staining by common foods and chemicals	***	**	**	**
Ease of repair and maintenance	*	***	***	***
Speed of cure of varnishes	**	*	*	***
Ability to recoat quickly	**	*	*	**

KEY: Good * Better ** Best *** No stars DO NOT USE

APPLYING VARNISH TO EPIGLASS® HT9000® EPOXY OR OTHER CLEAR EPOXY RESINS

1. After applying epoxy allow to cure for a minimum of 3–5 days. Scrub Epiglass® HT9000® Epoxy with a stiff brush using soap and water. Rinse with fresh water to remove soap residue. (SANDING WILL NOT REMOVE SURFACE CONTAMINATION).
2. Wet sand the surface using 120–150-grit wet-or-dry sand paper. Remove sanding residue by wiping the surface with a rag that has been dampened with International Universal Thinner #4. Wipe only small areas at a time and change rags frequently.
3. Apply 5–6 coats of Perfection Varnish. Sand in between coats with 220–320 grit wet-or-dry sandpaper. Remove sanding residue with a cloth that has been dampened with International Universal Thinner #4.

SPECIAL HINTS WHEN APPLYING SATIN FINISHES

- ✓ Satin finishes are a popular choice for the finishing of interior woodwork providing a softer look. They do however require extra care and attention in application and use compared to their gloss counterparts. The hints on pages 20 and 21 should be read and followed very carefully along with the tips presented here.
- ✓ As detailed in the specifications on page 18 an excellent satin finish can be obtained very easily.
- ✓ An alternative system however that is slightly quicker and easier especially for the larger jobs is as follows. For new timber surfaces follow the specification systems on page 18 and use Goldspar® Original but only apply 2–3 coats or as many as are required to seal the surface of the timber to provide a smooth defect free surface. Once the last coat has dried, carefully sand the surface to remove dust, nibs and any other defects etc. Then apply 1–2 coats of the Goldspar® Satin finish as required.
- ✓ This system has slight advantages on darker timbers where the above system will help to give improved sharpness of the grain pattern of the timber.
- ✓ Satin finishes contain a flatting agent that may tend to settle slightly in the can. Before use stir contents very slowly using a broad blade spatula or stick to ensure contents are totally uniform. Do not stir vigorously otherwise the varnish will be filled with air bubbles making it difficult to achieve a smooth finish.
- ✓ When cleaning Satin surfaces do not use cleaners that contain any abrasive material no matter how fine it is claimed to be. These types of cleaners will tend to gloss the surface up.

Visit our website for more information – **yachtpaint.com**

Handy Specifications for Previously Unvarnished Surfaces

VARNISH SCHEME RECOMMENDATIONS

Follow one complete product scheme all the way through

STAGE	PRODUCT	PREVIOUSLY VARNISHED	BARE WOOD	OILY WOOD (TEAK, IROKO)		WORK TIME*	OVERCOATING TIME**
				PREVIOUSLY VARNISHED	BARE WOOD		
ABRADE		280–320 grade	80–180, then 280 grade	280–320 grade	80–180, then 280 grade, degrease thoroughly	1	
DEGREASING		∅	∅	∅	Use Universal Thinners #4		
FIRST COAT (ONE PACK VARNISHES)	Schooner® Tropical Goldspar® Original Goldspar® Satin (Interior only)	∅	1 Thinned 10–15%	∅	1 Thinned 10–15%	1	12 6 6
FIRST COAT (TWO PACK VARNISHES)	Perfection	∅	1 Thinned 10–15%	∅	Seal with Everdure	1	See product label
SECOND AND SUBSEQUENT COATS AS REQUIRED	Schooner® Tropical	1–10	6–10	1–10	6–10	1	18
	Goldspar® Original	1–10	6–10	1–10	6–10	1	16
	Goldspar® Satin (Interior only)	1–3	1–3	1–3	1–3	1	6
	Perfection	1–5	5 minimum	1–5 †	5 minimum	1	6
					TOTAL PROJECT TIME:	5 WEEKENDS	

* Average time to apply one coat to average sized boat of 8m/25 feet.
** Minimum wait time between coats or between overcoating with the next step in the system, at a temperature of 23°C.
Please consult product data sheets (available from International) for overcoating times at different temperatures.
† Always avoid applying a two-part product onto a surface previously varnished with a one-part varnish.

KEY: No.of coats · Minutes · Hours · ∅ Do not use for this purpose

How to paint like a professional

Top Tip

RE-VARNISHING EXISTING VARNISHED SURFACES

To achieve a good finish, the condition of the existing varnish should be thoroughly checked to determine the extent of the preparation required.

1	Look for areas of damage, separation or peeling or any other signs that the varnish does not have a firm hold on the substrate.
2	Clean and prepare the surface by washing with a suitable liquid detergent to remove any contamination. Then inspect again to ensure no damage has been missed.
3	**VARNISH – GOOD CONDITION – NO DAMAGE:** Sand with 320-400 grade wet or dry paper and when dry, wipe with a dust wipe. **VARNISH – GOOD CONDITION – SOME DAMAGE:** Repair damaged areas and spot prime with varnish to build the area up to match the surrounding area. Then sand the entire area prior to continuing with the full varnish job. **VARNISH – POOR CONDITION:** If the previous varnish coating is cracking, peeling or generally showing signs of separation over the whole area, it should be totally removed by either scraping, sanding or with a chemical paint stripper.

***PRO TIP**: Always work in the direction of the grain, whether sanding or applying varnish. This will avoid scratches that can even show through many coats of varnish*

Top Tip

APPLYING VARNISH

1	We recommend that the first coat of varnish applied is thinned up to 15%. This will promote good penetration of the surface, and adhesion of subsequent coats.
2	After the first coat has been applied, the surface will appear rough. This is a result of the exposed ends of grain absorbing the varnish and lifting. Sand smooth with a medium grade paper – 320 to 400.
3	Applying varnish with a brush is usually the best method, although roller application can be effective on large flat surfaces. Brush out the varnish with firm strokes along and across the grain holding the brush at 90° to the surface. Then 'tip-off' by gently stroking the surface with the brush at 45°, following the grain. Your brush should be used for varnish only.
4	For exterior use it is imperative to apply sufficient coats. Normally you need to apply varnish until the grain of the timber has been filled. At this stage the surface requires lightly sanding to give a truly smooth surface free from any grain depressions. Then apply the full number of coats from that point on for maximum performance. If the finished object does not end up with a very rich deep gloss lustre then it probably hasn't had enough coats applied. Take extra care on vertical surfaces or difficult shapes where less varnish is always applied. Premature failure of varnished surface is inevitably related to insufficient film builds.

HINTS TO HELP YOU ACHIEVE A PERFECT RESULT EVERY TIME

- ✓ Round the edges of any scrapers with a file to avoid gouging.
- ✓ Keep the sandpaper clean and change it frequently.
- ✓ Sand by numbers, finishing the surface with a progressively finer grade of paper.
- ✓ Varnishing is best achieved on warm, dry mornings – cold weather slows drying and damp spoils the gloss.
- ✓ Always use a clean brush, previously used only for varnish.
- ✓ Always buy the highest quality varnish and brush available. This will ensure you achieve the most attractive finish.
- ✓ Clean new brushes before use.
- ✓ Test the finish on a spare piece of wood before applying to the boat.
- ✓ On large areas use a foam roller to apply the initial coat, followed immediately behind with a wide brush for the finishing strokes – this is best done by two people.
- ✓ After cleaning with the correct thinners, wash the brush in detergent and warm water, dry and wrap in greaseproof paper in a fine chisel shape.
- ✓ Alternatively, having cleaned and washed the brush, suspend by its handle to avoid any 'fishtailing' of the bristle.
- ✓ As the varnish ages in the tin you may find there are lumps or contamination. Sieving the varnish into a separate container through cheesecloth, a paint filter or an old stocking is a good solution to this problem.
- ✓ Never apply direct from the can, as this will introduce contamination.
- ✓ Always pour the amount of varnish that you expect to use at any one time, into a separate container.
- ✓ Don't use varnish which has been open for a long period as it will have picked up dust.
- ✓ Do not varnish wood when exposed to direct sunlight.
- ✓ Never leave bare wood exposed too long as it will absorb moisture from the atmosphere.

Cetol® Marine is a unique high performance interior and exterior wood treatment. It is an easy to apply low maintenance alternative to wood oils and other wood treatments. Its durable, attractive, translucent satin finish has been specially formulated with one main goal in mind - to protect your wood and keep it looking beautiful with the least maintenance necessary.

Cetol® Marine contains synthetic transparent iron oxide pigments, which shield the wood against sunlight, effectively protecting the wood from being degraded by exposure to UV. It's durable surface film is flexible, which means that it is very resistant to impact damage and abrasion, and allows for natural expansion and contraction of wood. It also prevents flaking.

Cetol® Marine penetrates the surface of the wood, providing water repellence, protecting the wood from water damage and is microporous, allowing the wood to breathe. This helps to keep the moisture content of the wood stable.

Cetol® Marine is a lower viscosity than most varnishes allowing excellent wood penetration, easy, rapid application of coats and superb flow and leveling preventing the need for sanding between coats. This, combined with its quick drying, makes it a really easy-to use. It is formulated for use on all marine woods, and is particularly suitable for tropical hardwoods like teak and is available in two distinctive colours – Teak and Natural but a range of other shades can be achieved by mixing the Teak and Natural together. Cetol Marine has a specially formulated thinner called AK Thinner which is a combination surface cleaner, equipment cleaner and thinner.

WHERE SHOULD I USE CETOL® MARINE?

Decks – Decks are subject to damage caused by direct exposure to harsh ultraviolet rays, high moisture levels, standing water, and extreme temperature changes, as well as abrasion.

Brightwork – In general, the trim, mast, railings and other exterior wood areas should be maintained annually. Check these areas occasionally for signs of moisture entry through unsealed end grains.

Interiors – Interior woodwork, especially in areas of heavy traffic, is subject to wear and tear too. Being a low sheen impact resistant coating, Cetol® Marine is ideal for interior use.

REMEMBER: *If applying Cetol over sealant check a small area first to ensure the Cetol Marine dries satisfactorily.*

Top Tip

Cetol® Marine

HOW DO I PREPARE THE WOOD PRIOR TO USING CETOL® PRODUCTS?

	NEW WOOD
1	Wipe the wood with AK Thinner to remove the oils from the surface. For extra oily timbers such as Teak use Universal Thinner No. 4. After evaporation of the thinners, sand all exterior surfaces with 120 grit sandpaper.
2	Remove all sanding dust by vacuuming followed by wiping the surface with a dampened cloth.
3	Allow the surface to dry completely before applying Cetol Marine.
	PREVIOUSLY VARNISHED OR OILED SURFACES
1	Any old oils or varnish must be completely removed using paint and varnish removers or by sanding.
2	Clean down the surface using AK Thinner.
3	If the timber is not clean and residues of old product remain, adhesion and penetration of the Cetol may be compromised.

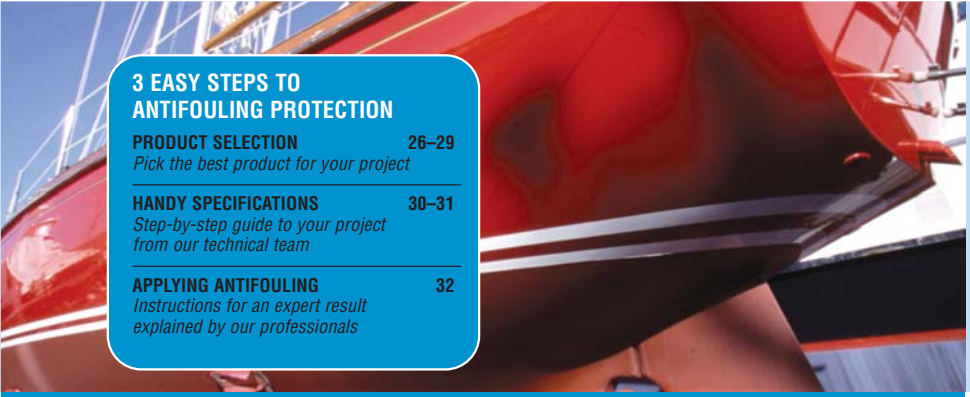
HOW SHOULD I APPLY AND MAINTAIN CETOL MARINE?

If Cetol Marine has not been used before simply apply 4 coats of Cetol after preparing the wood. A very light sand between coats is allowable to remove any dust or contamination that may have settled on the job, but do not sand too hard and use only very fine sandpaper – 220 grit or finer.

MAINTENANCE OF CETOL

1. When the time comes to give the surface another coat of Cetol simply wash down the surface with All Purpose Boat Soap, rinse thoroughly and allow to dry.
2. Sand the surface lightly using 220 grit sandpaper. Apply 1-2 coats as required.
3. A light sand between coats is allowable to remove dust and contamination.
4. Regular cleaning with All Purpose Boat Soap will prolong the life of Cetol.

IMPORTANT: TO FIND MORE INFORMATION ON THE APPLICATION OF CETOL®, VISIT **yachtpaint.com** OR CALL **1 800 251 431 in Australia or 0 800 808 807 in New Zealand**



3 EASY STEPS TO ANTIFOULING PROTECTION

OUR MOST FREQUENTLY ASKED ANTIFOULING QUESTION:

"How do I know that the product I want to apply is compatible with my old antifouling?"

'Applying your desired International antifouling has never been easier. Compatibility is an issue most boaters worry about, but there are three easy choices to solve this problem.

1. Check for compatibility *with old antifouling. If the product is known use the International compatibility chart on page 37.*

2. Use Primocon as a tie coat primer *over the old paint. If the old antifouling is unknown you can apply Primocon primer directly, then simply overcoat with any International antifouling mentioned in this guide.*

3. Remove the old antifouling.
If the old antifouling is in poor condition remove it and start with a fresh surface. After stripping you are ready to prime and paint.'

WHY HAVE TEFLON® IN OUR PRODUCTS?

As a boat owner you naturally want the best quality products that you know will perform better than others, and give you the maximum long term value for money.

Teflon® is an extraordinary and versatile technology EXCLUSIVELY available in coatings from International Yacht. Teflon® has a coefficient of friction lower than ice, making it the most slippery material in existence. Its non-wetting properties have seen it used extensively in water-repellent fabrics such as Gore-tex, and in coatings for easy cleaning surfaces. Its excellent heat resistance has meant it has been used extensively by NASA in the design of heat shields and space suits.

By featuring Teflon® in our antifouling products you get the benefit of smooth, low-friction surfaces that minimise drag, resist damage and are exceptionally easy to clean. See the individual product performance characteristics in our Antifouling Product Selection table on pages 28 & 29.

antifouling

Antifouling is the most common (and most important) painting job carried out by boat owners. You can very easily do a professional quality job yourself, but you must bear in mind a few important points.

The type of antifouling you choose should be tailored to the fouling challenges in your boating area. Different water qualities and temperatures produce different types and breeds of fouling. Even in a small area the differences can be quite dramatic, due to outfalls, pollution, inflows from rivers and streams, the speed of flow of the water – and even shading from cliffs, trees and buildings.

It is vital to protect your boat through antifouling as once fouling has a hold on your hull, it will rapidly colonise the surface, making it difficult to remove. Prevention is therefore much better than cure.

THERE ARE THREE KEY REASONS FOULING GROWTH SHOULD BE PREVENTED:

SAFETY: Heavy fouling growth reduces responsiveness of the craft as well as making it sit lower in the water. This can have serious implications in challenging weather conditions.

PROTECTION: Prolonged fouling growth will damage the substrate of the hull. For example, the natural glues organisms use to attach to the hull damage wood and glass fibre.

SPEED & EFFICIENCY: Fouling causes drag, which slows you down and increases fuel costs.

INTERNATIONAL'S ANTIFOULING RANGE PROVIDES PROTECTION FROM THE THREE KEY FOULING CHALLENGES:

ANIMAL: Animal fouling, such as barnacles, release millions of microscopic barnacle larvae into the water. These larvae need to attach to a static object to allow them to feed.
Most boats remain static for 90% of their time afloat, and offer perfect feeding grounds for all types of fouling.

WEED: Static objects attract common seaweeds, many of which will simply fall off as the hull travels through the water. However, some, such as Brown Weed, are more resilient and can withstand high speeds through the water.

SLIME: Slime is another major form of fouling. Slime is caused by billions of single celled algae which produce a syrupy medium in which to settle. Once established they provide settling ground for more algae, so coatings of slime can grow quite thickly as they are not detached as they move through the water.

DIFFERENT TYPES OF ANTIFOULING

Top Tip

Antifouling type is dictated by the quality, combination, quantity and type of resin that is used.

ERODING TYPE ANTIFOULINGS

These types of antifouling are partially water-soluble and therefore as water passes across the hull its action reduces the thickness of the antifouling. This results in a layer of fresh biocides being continually exposed on the surface preventing unwanted fouling. Polishing and ablative antifouling products have a more controlled antifouling action than the eroding types due to the choice of technology employed in the product. However, these types of antifouling are not always suitable for high speed craft, especially those used frequently as the action against the water may reduce the thickness of the film too quickly leading to premature fouling.

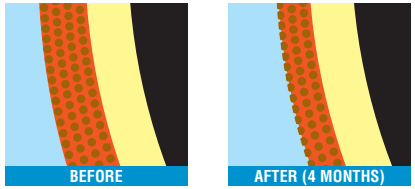
Self-polishing will, under equal conditions, show improved performance compared to the ablative eroding or polishing types especially under difficult fouling conditions. The reducing thickness of these antifouling types leads to a minimal build up of the coating at the end of the season reducing the maintenance and preparation needed when it is time to apply next season's antifouling.

HARD ANTIFOULINGS

The technical term for this type of antifouling is 'contact leaching.' After application, the paint film dries to a hard, burnishable surface that is porous. The film is packed with biocides which leach out on contact with water to prevent any fouling growth. The leaching process is chemically designed for release in a controlled manner throughout the season, until most of the biocide is exhausted and only a hard film remains. One of the main benefits of this type of antifouling is its resistance to abrasion and rubbing. This is ideal for fast powerboats and vessels moored in drying out mud berths or areas of fast tidal water movement.

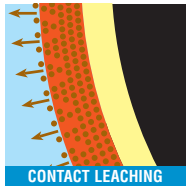
Some racing yacht owners like to smooth their hulls by burnishing with wet and dry paper prior to launch, which can be highly successful with the hard antifouling types. A disadvantage of the hard products is the build-up of residual antifouling which can occur if the surface is not properly abraded before new coats are applied each season.

eroding antifoulings



Reducing thickness of antifouling results in a layer of fresh biocides on the surface throughout the season.

hard antifoulings



Biocides leaching out of hard antifoulings on contact with water prevents fouling growth.

IS MY NEW ANTIFOULING COMPATIBLE WITH MY EXISTING PAINT?

The condition of any existing coating is important in order to provide a sound surface for the new antifouling.

OPTION 1

KNOWN ANTIFOULING

Check for compatibility; see compatibility chart on page 37 or at yachtpaint.com.
If you know what antifouling is currently on your boat, you can quickly determine whether your International paint choice is compatible.

OPTION 2

UNKNOWN; PRIME BEFORE PAINTING

Remove any loose, flaking areas with a scraper, wash with fresh water and allow to dry.
Then apply a tie-coat of Primocon before applying chosen International antifouling.
If antifouling is in poor condition then totally remove it and repair any priming system exposed either with the original International priming system if known or by using Primocon.
Note that Primocon MUST NOT be applied over some specialised speed coatings which may have previously been applied. Contact our Helpline for advice on repair to these types of coatings.

OPTION 3

UNKNOWN; REMOVE

Remove old antifouling.

IMPORTANT: *Now that you've stripped your hull, it's important to inspect for any gelcoat damage before repainting. Also, consider applying our industry-leading Interprotect® gelcoat blister protection system, to prevent long term water osmosis damage.*

Top Tip

How to choose your ideal antifouling…

International manufacture a wide variety of antifoulings to meet all sorts of fouling challenges and, often more importantly, different boating styles. The charts on these pages will help you sort out which product is perfect for your boating style and fouling challenge.

Due to the differing registration requirements between countries some antifoulings may not be available in your area.

'BIOLUX® TECHNOLOGY'

is a unique antifouling technology developed by International. It consists of a system of organic boosting biocides incorporated in a highly effective controlled release film.

SELF - POLISHING — Ultimate Performance

- Controlled polishing action during use
- Can be used on fast and slow boats

MICRON 66

- Available in red green blue and black
- Superb protection in any fouling area
- Long term performance
- Polishes away thru a controlled chemical reaction
- Reduces slime build up

POLISHING — Excellent Protection

- Polishing action provides controlled biocide release for long-term performance
- Wears away with use
- Reduced maintenance – minimal build up reduces preparation time

MICRON EXTRA

- Premium copolymer antifouling for harshest fouling areas
- Excellent protection from one complete application
- Minimum paint build up, washes away with use
- Biolux® technology for sustained antifouling protection

ABLATIVE — General Purpose

- Wears away with use
- Reduced maintenance – minimal build up reduces preparation time

***COPPERCOAT**

- Good all round performance

ERODING — Economical

- Wears away with use
- Boat must be launched soon after application

***BOTTOMKOTE**

- Medium Strength

HARD

- Hard, durable
- Resistant to abrasion and rubbing
- Suitable for fast craft and craft on dry moorings
- Scrubbable finish

High Strength

***ULTRA**

- Ultra strong formula for high fouling areas
- Hard, durable finish
- Biolux® technology for sustained antifouling protection

LONGLIFE

- Hard wearing
- Performs in high fouling conditions

Aluminium Hull Compatible

***TRILUX®**

- Hard antifouling for aluminium in bright colours
- For fast, active craft and craft on dry moorings
- Biolux® technology for sustained antifouling protection

***INTERSPEED 2000**

- Aluminium compatible
- Bright colours

TRILUX® 33

- Available in bright colours
- More effective than other similar antifoulings
- Tin free replacement product for Superyacht use

Racing Finish

VC OFFSHORE WITH TEFLON®

- For racing, sailing and power boats
- Suitable for salt and freshwater
- With Teflon® for an ultra smooth, low friction surface
- Hard, smooth finish can be burnished to a very low profile

*Check availability in your country.

IMPORTANT: ALWAYS READ THE LABEL. USE PESTICIDES SAFELY.

ANTIFOULING

...that's perfect for your style of boating

Picking the perfect paint sometimes can be boiled down to one or two simple problems you need to solve. This table shows the most common problems boaters are trying to solve.

Read across the table to identify the paint that suits your needs.

SOLUTION CHOICES / COMMON PROBLEMS	POLISHING	SELF POLISHING	ERODING	HARD					
	Micron Extra	Micron 66	Bottomkote	Trilux® 33	Ultra	Longlife	Trilux®	Interspeed 2000	VC Offshore with Teflon®
Number of packs	1	1	1	1	1	1	1	1	2
Thinners & cleaners	Antifouling Thinner No. 3			Antifouling Thinner No. 3					
Which antifouling has the best racing properties?		✓							✓
Which other antifoulings could I use on my racing yacht where I wet sand and/or clean it regularly?		✓		✓	✓	✓	✓	✓	✓
Which antifoulings are easy to use and apply?	✓	✓	✓	✓	✓	✓	✓	✓	
Which antifoulings are two-pack materials and require mixing together before use?									✓
Which antifoulings are formulated for use on primed aluminium and also come in very bright colours?				✓			✓	✓	
Which antifouling gives the absolute highest all-round resistance to a variety of fouling types?	✓	✓			✓				
Which antifoulings work well in heavy fouling areas?	✓	✓		✓	✓	✓			
Which antifouling can be left out of the water for long periods without affecting its performance?	✓								
Which antifoulings could I use on my infrequently used GRP high speed power boat?	✓	✓			✓	✓			
Which antifoulings could I use on my frequently used GRP high speed power boat?		✓			✓	✓			
Which antifoulings would be used where I do not want a build up of old antifouling to occur?	✓	✓	✓						

KEY: ✓ Excellent for this purpose

IMPORTANT: *ENSURE YOU CHOOSE THE CORRECT ANTIFOULING FOR ALUMINIUM AND ENSURE SURFACES ARE WELL PRIMED.*

Top Tip

Handy Specifications for Previously Unpainted Surfaces

ONE-PART PRODUCTS

This preparation scheme provides a good level of protection

STAGE	PRODUCT	GRP & EPOXY	ALUMINIUM	WOOD	STEEL	LEAD	WORK TIME*	OVERCOATING TIME**
CLEAN	Suitable liquid detergent	YES	YES	∅	YES	YES	1	
ABRADE		180–220 grade	Mechanically	80-100 grade	Mechanically	Mechanically	2–4	
OPTIONAL SEALING	Everdure	∅	∅	2–4	∅	∅	1	See product label
FILLER	Epoxy Filler*** (if needed)	YES	∅	YES	∅	∅	45	See product label
SURFACE PRIMER	Etch Primer	∅	1	∅	∅	1	1	3
PRIMER	Primocon****	∅	1	1	1	1		See product label
PRIMER	Primocon****	1	4	2	4	4	1	See product label
ANTIFOULING	International Antifouling	2–3	2–3	2–3	2–3	2–3	1	See product label
						TOTAL PROJECT TIME:	2 WEEKENDS	

* Average time to apply one coat to average sized boat of 8m/25 feet.
** Minimum wait time between coats or between overcoating with the next step in the system, at a temperature of 23°C.
*** Refer to page 47 for further details.
**** If preferred 4 coats of Yacht Primer may be used in place of 3 coats of Primocon.
Please consult product data sheets (available from International) for overcoating times at different temperatures.

KEY: No.of coats Minutes Hours ∅ Do not use for this purpose

TWO-PART PRODUCTS

This preparation scheme provides the maximum level of protection available

STAGE	PRODUCT	GRP & EPOXY	ALUMINIUM	WOOD	IRON/ STEEL	LEAD	WORK TIME*	OVERCOATING TIME**
CLEAN	Suitable liquid detergent	YES	YES	∅	YES	YES	1	
ABRADE		180 grade	Mechanically	80–280 grade	Mechanically	Mechanically	2–4	
OPTIONAL SEALER	Everdure	∅	∅	2–4	∅	∅	1–2	16
SURFACE PRIMER	Etch Primer	∅	∅	∅	∅	1	1	See product label
PRIMER	Interprotect®	∅	1	∅	1	1	1	3
FILLER	Epoxy Filler*** (if needed)	YES	YES	YES	YES	YES		See product label
PRIMER	Interprotect®	5	4	3–4	4	4	1	See product label
ANTIFOULING	International Antifouling	2–3	2–3	2–3	2–3	2–3	1	See product label
						TOTAL PROJECT TIME:	2 WEEKENDS	

* Average time to apply one coat to average sized boat of 8m/25 feet.
** Minimum wait time between coats or between overcoating with the next step in the system, at a temperature of 23°C
*** Refer to page 47 for further details.
Please consult product data sheets (available from International) for overcoating times at different temperatures.

KEY: No.of coats Minutes Hours ∅ Do not use for this purpose

APPLYING ANTIFOULING

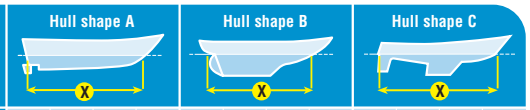
1	Ensure you are wearing the recommended protective clothing and eyewear. Information on this can be found on the label, at the back of this booklet or at yachtpaint.com. Stir the paint thoroughly before application. It contains very heavy compounds, which can settle to the bottom of the can.
2	Common application methods include roller or brush. Spray application can be undertaken, except for Micron Optima, but requires specialist equipment. Micron 66 and Trilux 33 are recommended to be only brush or roller applied by DIY users.
3	**ROLLER APPLICATION:** Use a short mohair roller of either radiator or larger size, *(unless otherwise stated on the can)*. A smaller roller is less work on the arm but can take slightly longer.
4	**BRUSH APPLICATION:** Use a large width brush *(e.g. 5")*. The finish will not be as smooth as a topside paint, therefore, the type of brush used is not critical.
5	It is very important to apply the correct thickness of antifouling even if it means putting on an extra coat. Everyone applies paint differently, so take care to apply all of the paint calculated using the guidance at the back of this manual. Normally recommended thickness is achieved by the application of two coats.
6	Apply an extra coat to all leading and trailing edges, waterline, trim-tabs, outdrives, keel and rudder. High turbulence in these areas tends to wear the antifouling faster.
7	Follow overcoating times and immersion times carefully. These are the biggest causes of antifouling detachment. Water is a very aggressive environment for paint and it is therefore very important that the paint is allowed to dry thoroughly, before launch.
8	Usually Antifouling Thinners #3 is suitable as a thinner and equipment cleaner. This does not apply to all antifoulings, so please read the label before application. Thinning is not advised, but up to 10% may be added to aid application in very hot or windy conditions. We also advise that all equipment is washed out immediately after use.

HOW MUCH ANTIFOULING PAINT DO I NEED?

Determining how much antifouling you will need is fairly simple. Here are two quick guides to help you purchase the correct amount:

1) Calculate the area needing paint. For a rough estimate of the area to be painted, multiply the length of your hull (LOA) by the beam and multiply by 0.85. (LOA x B x 0.85 = Area) Then divide the area by the coverage (see page 58) of the paint you've chosen to determine how many litres per coat you will need, or

2) Refer to the reference chart below for a quick estimate:



	Hull shape A				Hull shape B				Hull shape C			
X *(metres)*	6.1	7.6	9.1	12.2	6.1	7.6	9.1	12.2	6.1	7.6	9.1	12.2
X *(feet)*	20	25	30	40	20	25	30	40	20	25	30	40
Litres required* (standard range)	4.0	5.0	7.0	12.0	3.0	4.0	5.0	9.5	2.0	2.5	3.5	6.0
Litres required* (VC range)	3.0	4.0	5.5	9.5	2.5	3.0	4.5	7.5	1.5	2.0	3.0	5.0

**Average amount based on 2 coats*

Note: for coverage information on other products, such as primers, please refer to the chart on page 58.

outdrives, underwater metals & keels

Outdrives are built out of aluminium. This presents compatibility issues with cuprous-oxide containing antifoulings. Similarly, propellers are typically made with aluminium or bronze. Keels are made of iron, steel or lead, or in some cases a mixture of a lead shoe on a steel keel.

It is important to establish the construction material of the metal you are working on. In particular, the keel needs to be treated with great care when preparing to keep it durable and free from corrosion.

THERE ARE 2 CRUCIAL ISSUES TO CONSIDER WITH ALL UNDERWATER METALS:

1) SUBSTRATE PREPARATION

The key to protecting your underwater metals from corrosion is correct preparation of the substrate, and choosing the best priming solution for your project. The first step is to identify what metal your substrate is, then to look up which products are compatible with the substrate in the table below.

2) ANTIFOULING SOLUTIONS

The second step is to simply choose your antifouling solution. Two rules should be followed:

- **Never apply an antifouling containing cuprous oxide to aluminium** e.g. outdrives, hulls
- Choose a hard, durable antifouling that will stand up to the wear and tear in these difficult areas.

REFER TO PAGES 26–29 TO SELECT THE BEST ANTIFOULING FOR YOUR PROJECT

PROPELLERS, OUTDRIVES AND STERNGEAR

1	Clean thoroughly and abrade surface with 80 grade sand paper.
2	Etch prime and/or prime the surface. (As recommended in the specification table below.)
3	Apply suitable antifouling.

For more information on how to prepare your metal substrate for a perfect result, please refer to the 'Everything Else You Need To Know' section on page 54.

PROPELLERS, OUTDRIVES AND STERNGEAR

STAGE	PRODUCT	ALUMINIUM	BRONZE	WORK TIME*	OVERCOATING TIME**
CLEAN	Suitable liquid detergent	YES	YES	20	
ABRADE		Mechanically	Mechanically	30 to 60	
SURFACE PRIMER	Etch Primer	1	PA 10	5 to 15	See product label
PRIMER	Interprotect® or Primocon	5	∅	10 to 20	3
ANTIFOULING	Hard type. Refer to pages 26–27	2–3	2–3	10 to 20	See product label
				TOTAL PROJECT TIME:	**1 WEEKEND**

* Average time to apply one coat to average sized boat of 8m/25 feet.
** Minimum wait time between coats or between overcoating with the next step in the system, at a temperature of 23°C.
Please consult product data sheets (available from International) for overcoating times at different temperatures.

KEY: No.of coats Minutes Hours ∅ Do not use for this purpose

REFER TO THE HANDY SPECS ON PAGES 32–33 FOR OUR FULL ANTIFOULING SCHEMES

Top Tip

KEEL SYSTEMS

SURFACE PREPARATION
Remove any poor condition, flaking coating to ensure the substrate is sound. Rub the surface down with wet and dry paper. Leave to dry thoroughly before inspecting condition of the substrate again.

IRON AND STEEL
GRIT BLAST TO SA 2.5. Heavy duty discing can also be used, but this is unsuitable for high performance systems, where all the paint should be removed.

LEAD
Remove the tarnished oxide layer by rubbing down with an emery cloth or by disc grinding. Remove grease and contamination by washing with a suitable liquid detergent. Prime with a single coat of Etch Primer.

CAST IRON
Angle grind, until metal is bright. Prime with Primocon.

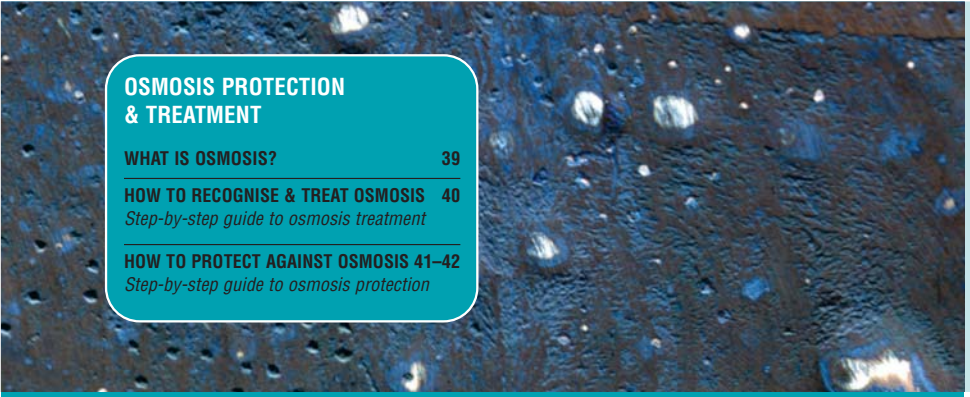
HINTS TO HELP YOU ACHIEVE A PERFECT RESULT EVERY TIME

- ✓ Good preparation and priming is essential to ensure that the antifouling adheres to the surface for the duration of the product life.
- ✓ All antifoulings change colour when they are immersed. Don't be surprised if when you finish the job, the colour differs slightly from the colour chart. The true colour will develop 3 or 4 weeks after immersion.
- ✓ Along the water line antifouling can look dirty or even turn green. This is due to the reaction of the paint with oxygen. To avoid this problem use Trilux or Interspeed 2000 along the waterline and clean periodically to prevent fouling build-up.
- ✓ Boot-topping antifouling should not be applied over a topside finish.
- ✓ Propellers, outboards and sterndrives are either constructed of aluminium or bronze. There are no reaction problems in using copper containing products on bronze. For more information see page 35.
- ✓ Care should be taken not to paint zinc anodes, which are often located next to the prop shafts, as this will seriously reduce their effectiveness.
- ✓ When painting your outdrives, underwater metals and keels, the longevity of any antifouling is difficult to predict, as the coating adhesion is an issue, particularly on propellers.

ANTIFOULING COMPATIBILITY CHART

PREVIOUS ANTIFOULING (IN GOOD CONDITION) / CHOSEN ANTIFOULING	MICRON OPTIMA	COPPERCOAT	MICRON EXTRA MICRON CSC MICRON 66	ULTRA LONGLIFE	CRUISER® SUPERIOR	TRILUX® TRILUX® 33 INTERSPEED 2000	BOTTOMKOTE	VC OFFSHORE WITH TEFLON®
MICRON OPTIMA	●	●	●	●	●	●	●	●
MICRON EXTRA MICRON CSC CRUISER® SUPERIOR COPPERCOAT	●	●	●	●	●	●	●	●
BOTTOMKOTE	∅	●	∅	∅	∅	∅	●	∅
TRILUX® INTERSPEED 2000 LONGLIFE VC OFFSHORE ULTRA	●	●	●	●	●	●	●	●
UNKNOWN PRODUCT	B	B	B	B	B	B	B	B
PREVIOUS ANTIFOULING IN POOR CONDITION	∅	∅	∅	∅	∅	∅	∅	∅

KEY:
- ● Apply the chosen antifouling directly after an 80 grit wet sand, wash with fresh water and allow to dry.
- ∅ Remove the antifouling totally.
- B Following an 80 grit wet sand apply a barrier coat of Primocon before applying any International antifouling mentioned in this guide.



OSMOSIS PROTECTION & TREATMENT

osmosis (oz-mO'sis, os-), —*n.*

Dictionary definition;
The diffusion of fluids through membranes or porous partitions.

Yachter's definition;
Boat owner's greatest enemy. Water absorbs through gelcoat causing damage and weight gain. Can be prevented with INTERPROTECT®.

AN OUNCE OF PREVENTION IS WORTH A POUND OF CURE...

The importance of having a moisture-free hull cannot be overemphasised. The drier the laminate, the lighter the hull, the better the performance, the more efficient fuel use and the longer the gelcoat life. A boat hull that has absorbed moisture will also sit lower in the water than intended and will reduce the responsiveness of the boat.

The best time to attack hull blistering is before it happens.Taking preventative action before a problem occurs will greatly reduce the likelihood of an expensive repair and increase resale value.

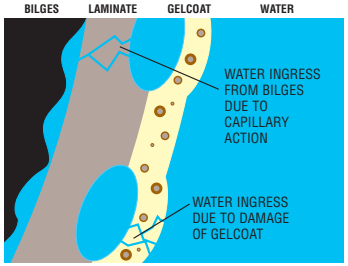
If you're buying a new boat, protect your investment with INTERPROTECT® before it ever goes in the water!

fibreglass

blister repair & prevention

WHAT IS OSMOSIS?

Osmosis is a process of degeneration within a glass fibre laminate. It is caused by a chemical reaction between water and unreacted substances remaining in the manufactured hull. The water enters the hull through the gelcoat and once inside, reacts with the chemical components creating acidic substances. These substances create pressure behind the gelcoat, which causes blisters and eventually cracking. Once the gelcoat is breached in this manner, the underlying laminate is capable of absorbing water like a sponge.



Osmosis is not only caused by water on the outside of the hull – bilge water from the inside can also cause a problem. It is therefore worth making efforts to keep your bilges dry.

WHEN MIGHT OSMOSIS OCCUR?

Any unprotected hull is likely to show signs of osmosis eventually, like rust on a car.

The exact length of time before osmosis occurs depends on many factors, including: the type of water in which the hull is moored; the temperature of the water and most importantly, the quality of the original hull construction.

In some cases, reactive impurities in the gelcoat and laminate will cause osmosis in the early life of the boat. This is a structural problem and should be referred back to the boat manufacturer. However, even well-built, fibreglass hulls may eventually experience osmosis and blistering. This is why we recommend applying an epoxy protection layer, even to new boats.

REMEMBER: PREVENTION IS BETTER THAN CURE!

How to paint like a professional

Top Tip

HOW TO RECOGNISE AND TREAT OSMOSIS

THE MAIN SYMPTOM, 'BLISTERS' – Blisters are the most common warning sign and if identified should be followed up with immediate professional examination. Blisters can vary from small pinhead blisters, to areas as large as the palm of a hand. The presence of any fluid behind a blister indicates a potential problem. If the fluid has a pungent, vinegary odour or feels greasy or sticky when rubbed between the thumb and forefinger, there is a high probability of osmosis. Before any treatment is carried out, you need to establish what has caused the problem. We recommend that you seek the advice of a professional surveyor.

Some blisters occur for reasons other than osmosis. They are often evident as a rash of small pinhead blisters or swellings, either locally (often around the waterline) or over the entire underwater area. These blisters are hard and difficult to break and when broken open will be dry, with no odour evident. The likely cause is air voids. This is not a serious problem, but hull moisture levels should be checked before commencement of any remedial treatment.

OTHER WARNING SIGNS TO LOOK FOR ARE –
STAR CRAZING – This effect can occur where the gelcoat is brittle. Fine cracks usually form due to severe flexing or impact damage, allowing water to seep into the laminate.
PINHOLES – Tiny bubbles present in the gelcoat reduce its effectiveness and promote rapid water absorption.
PROMINENT FIBRES – Seen protruding beneath or through the gelcoat and can cause 'wicking' where water is drawn into the hull by capillary action.
UNDERCURING OF THE GELCOAT – Incorrect mixing or application in unsuitable conditions can cause failure to cure properly. This results in porosity and may lead to water ingress.

	WHAT TO DO IF OSMOSIS DOES OCCUR
1	**PROPER PREPARATION OF THE GELCOAT** This includes getting all of the antifouling paint off and removal of as much gelcoat as necessary to get the hull dry (i.e. the entire gelcoat or just small areas). A professional, who has looked at your boat, should make this determination.
2	**DRYING OF THE HULL** This is the most critical step in the process. If you do not get the hull dry it will re-blister. We recommend a comprehensive washing and drying procedure.
3	**APPLICATION OF EPIGLASS® HT9000 EPOXY RESIN AND/OR GELSHIELD® PLUS** **Refer to the Gelshield® Plus Application Manual for full details of use** Both of these solventless epoxies seal up the laminate and fill any cloth that has been voided of resin. It provides a water barrier to minimise the possibility of reoccurrence of damage.
4	**APPLICATION OF INTERPROTECT®** This will act as a tie coat to the antifouling.

RECOMMENDED OVERCOATING INTERVALS		
TEMPERATURES	PRIMING Interprotect® Coat-On-Coat	FIRST COATING OF ANTIFOULING
5°C	10 – 6	10 – 24
15°C	5 – 6	5 – 9
23°C	3 – 6	3 – 7
35°C	2 – 6	1 – 5
NUMBER OF COATS	5/6	1

KEY: Hours ● Months ○

HOW TO PROTECT AGAINST OSMOSIS

Protection is always better than cure and it really does make sense to protect a new boat as well as an older craft. To achieve this protection it is necessary to sheath the hull with a water barrier to seal the surface. This is done over the existing gelcoat. There is no better time to apply an anti-osmosis system than when the boat has not yet been launched. However, it must be stressed that protective systems cannot stop osmosis once it has started, or prevent it from occurring in poorly constructed hulls. It is important that a full check is undertaken before starting.

OSMOSIS PROTECTION SCHEME

STAGE	PRODUCT	GRP	WORK TIME*	OVERCOATING TIME**
CLEAN	Suitable liquid detergent	YES	1	
ABRADE		180 grade	2–4	
FILLER	Epoxy Filler*** (if needed)	YES		16
PRIMER	Interprotect®	4	2	3
ANTIFOULING TIECOAT	Interprotect®	1	1	3
ANTIFOULING	International Antifouling	2–3	1	See product label
		TOTAL PROJECT TIME:	2 WEEKENDS	

KEY: No.of coats Minutes Hours ∅ Do not use for this purpose

* Average time to apply one coat to average sized boat of 8m/25 feet.
** Minimum wait time between coats or between overcoating with the next step in the system, at a temperature of 23°C.
*** Refer to page 47 for further information.
Please consult product data sheets (available from International) for overcoating times at different temperatures.

Your best line of defence against osmosis

SOLUTION CHOICES / COMMON PROBLEMS	ANTI-OSMOSIS PRIMER	ASSOCIATED OSMOSIS SYSTEM PRODUCTS	
	 **INTERPROTECT®** High performance Epoxy Primer	 **EPIGLASS® HT9000®** Multi-purpose epoxy resin for DIY and professional use	 **EPIFILL® EPOXY FILLER/INTERFILL® 833** For blisters and damage SEE PAGE 45 FOR FURTHER INFORMATION
PROTECTING NEW/USED HULL *(GOOD CONDITION)* FROM OSMOSIS	YES	YES	NO
REPAIR OF GRP HULL DAMAGED BY OSMOSIS	YES	YES	YES

IF THE BOTTOM IS NEW OR UNPAINTED

1	Scrub the surface thoroughly with a suitable liquid detergent using a stiff brush. Flush with fresh water to remove any residue and allow surface to dry.
2	Inspect the hull for signs of damage or cracking and repair any defects with Epifill® Epoxy Filler. Any small areas should also be filled with Epifill® Epoxy Filler. Larger areas should be patch primed with Epiglass® HT9000®. In the event of more extensive damage being found, make sure that the water has not already entered the laminate.
3	Sand the gelcoat thoroughly using 180 grit sandpaper, sufficient to remove the gloss but no deeper otherwise pinholes which are virtually impossible to fill may be opened up. Then remove the sanding residues using a suitable liquid detergent.
4	Mix three parts Interprotect® base to one part Interprotect® curing agent, by volume. Mix only what can be used in five hours. Apply coats of Interprotect® following the overcoating intervals in the chart on page 41. Apply five to six coats (minimum thickness 250 microns). Finally apply International antifouling paint following the overcoating intervals listed on page 41.

IF THE BOTTOM HAS BEEN PREVIOUSLY PAINTED, COMMENCE WITH STEP 2.

IMPORTANT: THE APPLICATION OF INTERPROTECT® OR EPIGLASS® HT9000® COULD PROTECT AGAINST SERIOUS AND COSTLY STRUCTURAL PROBLEMS IN THE LATER LIFE OF YOUR HULL.

construction & repair with Epoxy products

EPOXY RESINS AND MULTI-PURPOSE ADDITIVES

Epiglass® has always been at the forefront in the supply of epoxy resin products for boat use. As far back as the 1950's, Epiglass® resin technology was amongst the first to be developed in New Zealand specifically for marine use.

The Epiglass® HT9000® system of epoxy resin, hardener and powder additives can be used for a wide variety of jobs on the boat. Epiglass® HT9000® can be made to act as a base for varnish, glues, fillers or laminating resin. So if you are restoring an old boat, building a new one or simply keeping your boat in a state of good repair, Epiglass® HT9000® can help produce high quality, long lasting results.

MIXING EPIGLASS® HT9000®

Calibrated pumps are available as a convenient and easy dispensing system for Epiglass® HT9000®. Pumps avoid spillage and contact of the resin and hardener with skin when mixing, an important factor when using epoxy material. Do not mix product in thin plastic cups as the heat generated on curing may melt the container leading to spills of hot sticky product.

1	Mix by volume, four parts resin to one part hardener. (When using Epiglass® HT9000® pumps, one stroke from each pump will deliver the proper 4:1 ratio.) Ensure pumps are fully primed as product may drain out between uses.
2	Stir slowly and thoroughly.
3	If necessary, add the appropriate fillers to achieve consistency desired.

IMPORTANT: TO FIND MORE INFORMATION ON PROJECTS YOU CAN COMPLETE WITH EPIGLASS® HT9000®, VISIT **yachtpaint.com**

Product Selection

COMMON USES OF EPIGLASS® HT9000® EPOXY SYSTEM	 Epiglass® HT9000® Resin Mix	 Epiglass® HT120 Glue Blend	 Epiglass® HT450 Filler Blend
	• Product's high strength and durability is suitable for sheathing, laminating, filling, fairing and gluing applications. • Low viscosity formula for ease of mixing and wet out. • Good compatibility with a wide range of laminates and cloth types • Good flexibility due to range of curing agents adapted to different climates or application environments with simple 4:1 mix ratio • Solvent free and low odour for a safer, cleaner working environment. • Good water barrier properties so can be used above and below waterline ***USES: sheathing, laminating***	• Produces high strength epoxy glue when mixed with Epiglass® HT9000® resin mix • Suitable for filling applications and is easy to sand • Does not increase the volume of the resin mix • Adaptable to diverse working conditions above and below the waterline	• Low density, and high strength • Suitable for filling and coving • Specific lightweight powder formulation • Good trowel and feathering properties and easy to sand ***USES: economical fairing for large areas***
SEALING FIBREGLASS	YES		
LAMINATING	YES		
SHEATHING	YES		
FILLING & FILLETING	YES	YES	
BONDING WOOD	YES	YES	
FAIRING; FILLING ABOVE WATER	YES		YES
FAIRING; FILLING BELOW WATER	YES		YES

EPIGLASS® HT9000® HARDENERS

The diversified uses for epoxy resin means no single hardener can satisfy all requirements. Epiglass® HT9000® has a simple hardener range to accommodate all uses. The following hardeners are available for use with Epiglass® HT9000® Epoxy Resin.

Standard hardener

This is the most widely used hardener, suitable for most applications.
Gel time per 100gms : 30 minutes at 25°C.

Fast hardener

This product has been formulated to accommodate colder climates or users that require a fast curing system.
Gel time per 100gms : 15 minutes at 25°C

Slow hardener

This product has been formulated for use in warmer climates, typically above 25°C.
Gel time per 100gms : 50 minutes at 25°C

Type of mix required by volume	Epiglass® HT9000® Resin Mix	Epiglass® HT120 Glue Blend	HT450 Filler Blend
LOW VISCOSITY GLUE MIX	1	0.75	
HIGH VISCOSITY GLUE MIX/FILLET MIX	1	1.5	
LIGHTWEIGHT FILLER MIX	1		3
FAIRING MIX	1		3

Note: The above chart is parts by volume of additive to mixed resin & hardener.
Volume can be altered to suit a particular job.

IMPORTANT: ALL INTERNATIONAL PAINTS ARE FULLY COMPATIBLE WITH THE EPIGLASS® HT9000® SYSTEM. TO ENSURE TOTAL COMPATIBILITY, USE A FULL EPIGLASS® HT9000® SCHEME.

IMPORTANT: THE MORE YOU MIX THE FASTER IT CURES – HIGHER TEMPERATURES MEAN A SHORTER POT LIFE, IN HOT WEATHER THE POT LIFE OF MIXED EPOXY RESIN IS SHORTENED. THEREFORE, MAKE A LARGER NUMBER OF SMALL MIXES. POUR INTO A FLAT TRAY TO REDUCE BULK.

EPOXY CONSTRUCTION & REPAIR

How to paint like a professional

SHEATHING

International has one epoxy sheathing resins available:

EPIGLASS® HT9000® : *Epiglass®* HT9000® provides an epoxy resin system for all stages of boat construction. It is also suitable for sheathing wooden hulls.

APPLICATION OF RESIN AND FABRIC

Many boat owners feel that sheathing a dinghy, launch or ocean racer is a job for experts. This is not true as the total sheathing operation is quite simple and can be approached with confidence by any amateur.

	A STEP BY STEP GUIDE TO SUCCESSFUL SHEATHING
1	Ensure that the hull surface is free from dust, grime and surface contamination.
2	Immediately before laying out the cloth, wipe down the hull with a clean, dry rag, moistened with Universal Thinners #4 to remove all dust etc. Allow to dry thoroughly.
3	Lay out the cloth, ensuring sufficient end overhang taking into account structural considerations. Temporarily fasten the cloth to the hull where necessary, using masking tape or staples.
4	Pour mixed resin/hardener into plastic paint tray.
5	Apply resin with a medium nap, mohair roller ensuring an even coverage. The roller sleeve should be kept well-loaded with resin, to avoid lifting the cloth from the hull. Care should be taken not to flood the surface. Where the cloth has been laid lengthwise, the resin application should be started in the mid-body and wet-out should proceed in a fore and aft direct.
6	Lay out the adjoining area of cloth using the wet edge to hold the new layer of cloth in position and proceed as for 5 above.
7	Where a clean edge finish is required, i.e. under gunwales, on transoms, cabin areas etc, mask the finishing line with masking tape and bring resin and cloth finish onto the tape. Allow to gel and trim off with trimming knife or sharp chisel, remove tape.
8	Keels, deadwoods or rubbing strakes can be effectively bonded with Epiglue® once sheathing has been completed, by sanding with 100 grit abrasive paper to a completely matt surface.
9	On V-bottom motor boats with built-in spray chines or spray rails, run the cloth longitudinally along the hull, making the selvedge overlap on the spray rails to save the unnecessary cutting and additional finishing associated with mid-topside joins.

	APPLYING THE SECOND COAT OF RESIN
1	It is best to allow five to six hours to elapse after the first saturation coat has been completed at which time (at 20˚C), the resin system will have firmly set up but will not be fully hard.
2	Using a sharp 80–100mm (3"– 4") Skarsten scraper with slightly rounded blade ends to avoid scouring the cloth, scrape off any surface nibs or exposed filaments including cloth overlaps and edge butts until you have a smooth, protrusion-free surface.
3	Follow on immediately with a second rolled coat of resin. This must be of sufficient film thickness to completely submerge and bury all the filaments of the cloth within the resin system. Allow to cure.

For further information refer to the Epiglass® HT9000® Epoxy Resin Guide.

FILLING & FAIRING

Your boat is not only under attack from the elements. Damage may also result from collision, abrasion and other mechanical damage. Fillers can be used for small scale repairs, and picking the right one for the job is essential if the result is to last.

CHOOSING THE RIGHT FILLER

Fillers are available with a number of different characteristics specific to how they will be used. Some have been formulated specially for filling and some for fairing and filling. It is important to ensure that you have selected the correct product for your job in hand. To assist in selecting the product, we have listed a range together with their appropriate uses.

SOLUTION CHOICES

INTERFILL® 833	EPIFILL®	EPIGLASS® HT9000®
A low-to-medium density very smooth and creamy two-part epoxy filler suitable for all filling work and for the smaller fairing jobs. Can be used above and below the waterline. Easy 1:1 by volume mixing ratio.	A medium-to-high density two-part epoxy filler. Can be used above and below the waterline and is ideal for all manner of filling jobs. It is especially suitable for those jobs where compressive forces are high (ie. between keels and hulls). It is also ideal for use as a bedding material under deck fitting such as winches etc. Easy 2:1 mixing ratio.	Epiglass® HT9000® is a system whereby the user can intermix various HT extender powders with the epoxy resin to produce their own fillers and fairing materials. Refer to the Epiglass® HT9000® brochure for complete details on this range of products.

If taking on a major profiling job, International has a range of professional epoxy fillers more suited to the task than those described above. For more information please call our helpline.

WARNING: APPLY FILLER FIRMLY TO SUBSTRATE TO ENSURE NO AIR BUBBLES ARE TRAPPED BENEATH THE SURFACE.

DO NOT USE POLYESTER BASED FILLER UNDER TWO-PART PAINT SYSTEMS.

GUIDELINES FOR USE

1	Epoxy Filler can be used above and below the waterline and is ideal for filling screwholes and hairline cracks in gelcoat, prior to repainting.
2	These epoxy compounds are 100% solids. Do not add thinners to these compounds as that will lead to shrinkage. Clean equipment with the recommended thinner. Refer to label or product datasheet.
3	When mixing epoxy compounds check the label to see what the pot life is for the temperature you are working in and mix only what can be used in that time.
4	To avoid flat spots when applying and sanding fillers on curved surfaces, use spreaders and sanding boards that are longer than the width of the area by at least half as much again.
5	No matter how smooth a finish you have achieved, when filling or fairing, all fillers must be sanded before overcoating to ensure good adhesion.
6	For screw holes and small repair areas, ensure that all dust is removed and clean the area by wiping with solvent. Over-fill the area to allow you to sand back to a flush finish.

HINTS TO HELP YOU ACHIEVE A PERFECT RESULT EVERY TIME

- ✓ Take care when mixing; always use the correct mixing ratio, as this will ensure maximum bond strength. Avoid contaminating either base or hardener by using separate dispensing sticks and/or disposable spoons. To ensure an accurate mixing ratio for a 2:1 by volume mixing ratio measure out three equal parts (2 of base and 1 of hardener) along the edge of the mixing board.
- ✓ For small jobs look for the handyman blister pack.
- ✓ If applying to rotten, soft or spongy timber, totally remove all unsound timber before applying filler. (Refer to Everdure rot prevention page 50).
- ✓ Mix only enough for the job and allow curing over night before sanding.
- ✓ Epifill® can be washed off the skin with warm soapy water however; it is recommended that plastic disposable gloves be worn.
- ✓ Tools can be cleaned with International Epoxy Thinners #7.

INTERFILL® 835

An off white, two-part, ultra high build surfacing compound that can be applied by roller or spray.

May be used to fill low areas, typically around 0.5mm deep prior to applying primers and undercoats.

Makes an excellent choice of material for filling the residual weave pattern in epoxy sheathing jobs and minor holes and depressions in other filling jobs.

A very easy to use and very easy sanding product. Mixing ratio is 3:1 by volume.

Should be overcoated with Interprotect® after being sanded smooth.

• When filling screw or nail holes, ensure that all dust has been removed and apply the filler mix, leaving the hole very slightly over-filled. Once sanded, no further filling will be required.

• During construction, it is advisable to use pre-drilled and counter sunk screw fastenings rather than using annular ring nails. The nails tend to pull the timber fibres below the true surface of the hull and after final painting, the timber often slowly returns to its original position. This leaves a slight hollow, giving the impression that the filler has shrunk when in fact, the area around the filler has actually swollen.

GLUING

International has two glues available:

EPIGLUE®

Epiglue® is a non staining, high-strength, gap-filling two-component epoxy resin adhesive. Supplied ready to use, Epiglue only requires to be mixed with its hardener, at two parts of resin to one part of hardener by volume.

EPIGLASS® HT9000®

Epiglass® HT9000® Epoxy Resin System has been developed to offer a comprehensive range of resin and hardener combinations for the boatbuilding industry. It includes systems for gluing, filling, fairing and sheathing timber, GRP, steel, aluminium and ferro hulls.

There can be no compromise when using adhesives. Bonding failure may result in loss of life or property. International Epiglue® and HT 9000® have been specifically developed to provide outstanding strength and durability under all conditions, but you must be careful to follow the appropriate preparation advice.

PREPARATION GUIDELINES

1	**TIMBER –** Make sure the timber is well-seasoned as well as dry and clean. For oily resinous timbers such as Teak, sand then degrease thoroughly with International Universal Thinners #4. Allow to dry and glue straight away.
2	**FIBREGLASS (GRP) –** When gluing an exterior gelcoat surface, clean with a suitable detergent followed by slight sanding. Do not sand too heavily, simply remove the gloss to provide a key for the adhesive. When gluing to interior gel coats or waxed and unwaxed resins, sand the surface thoroughly. Wipe down with International Universal Thinners #4 or Polyurethane Spraying Thinners #10 to confirm there is no uncured resin which will show up as sticky residue (which should be removed by solvent wiping with fresh rags as many times as required), then sand surface again and glue as required.

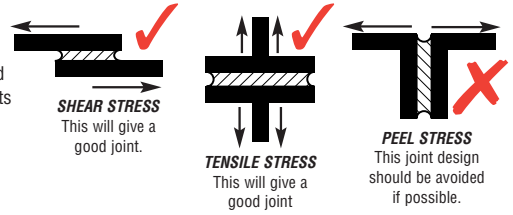
IMPORTANT: SURFACE PREPARATION IS VITAL TO ACHIEVING A SATISFACTORY JOINT.

IMPORTANT NOTES FOR SUCCESSFUL BONDING

1	Prepare the surface thoroughly.
2	Ensure joint surfaces are sanded/degreased/free of surface residues and contamination, and are pre-treated as required.
3	When using Epiglass® HT9000®, Extenders are kept dry and thoroughly mixed into resin and hardener mix.
4	Ensure the resin and hardener are correctly proportioned and thoroughly mixed together.
5	Apply glue to both surfaces to be bonded.
6	When using adhesives, high clamping pressures should be avoided, as excessive glue squeeze out will result in starved glue joints and possible joint failure.
7	Allow adequate curing before releasing clamping pressure. Longer is always better than shorter.
8	If temperatures are below 10°C, use Epiglass® HT9000® Fast Hardener or Epiglue® in pop-top pack.
9	It is important to remember that the temperatures of the substrate affects cure time of the glue, not the air temperature. Once the joint is made, air is sealed out and the substrate temperature determines the cure rate.

JOINT DESIGN:

The basis of good joints and successful gluing is for joints designed to have 'shear' or 'tensile' stress, not a 'peel' stress.



SEALING & PRIMING TIMBER

THERE ARE TWO MAJOR TYPES OF TIMBER BREAKDOWN

1. The most easily recognised is attack by insects or marine organisms such as borer or teredo worm. Both leave distinctive holes which are immediately apparent, even to the untrained eye.
2. The second type, dry rot, is much more insidious and is more difficult to recognise. It is often misunderstood, because the name itself implies the exact opposite of the conditions required for the organisms to breed. Dry rot will only occur when sufficient moisture is present to raise the moisture content of the wood above 20% and maintain it for lengthy periods. Dry rot is a fungus which attacks the timber fibres, causing them to disintegrate and leave the timber soft, powdery and spongy.

FOUR SIMULTANEOUS FACTORS ARE INVOLVED FOR IT TO BREED AND MULTIPLY

- *Low light values (sunlight will kill spores)*
- *High humidity (moist warm air)*
- *Inadequate air movement (lack of internal ventilation)*
- *Unprotected timber (food for the spores)*

EVERDURE PRIMER AND SEALER

International technology has developed a high performance two part epoxy timber sealer for use in construction and for repair work, which effectively seals out dry rot and densifies the timber. Just as International Epoxy sheathing systems will prevent marine organisms from entering the hull from the outside, so Everdure will protect timber fibres from attack in the boat's interior and other exposed wood surfaces. Everdure is blended from selected epoxy resins to allow maximum penetration and migration into the timber. This seals out moisture, hardens the surface and densifies the timber.

WHEN TO USE EVERDURE

Everdure should be used on all new boatbuilding construction and is ideally suited for repair work. It is compatible with all International glues, resins and fillers whether they are used in either pre or post-treated situations. Before gluing, the cured Everdure must be well sanded and abraded to provide a good surface key.

Everdure is also an ideal base before the application of a clear varnish on either the interior or the exterior. It provides a clear coating on its own when used as a multiple coating system for the interior only of wooden hulls.

HOW TO MIX AND APPLY EVERDURE TIMBER, PRIMER & SEALER

1	Everdure Concentrate (Part A) should be mixed with an equal volume of Everdure Activator (Part B).
2	To assist penetration, the timber should be as dry as possible.
3	The mixed Everdure should be diluted with International Epoxy Thinners #7 (up to 50% by volume) before use, for maximum penetration of the first coat.
4	As succeeding coats are applied, the thinner content should be decreased to 20% then 10% per coat.
5	Everdure should be applied in multiple coats where full saturation and sealing are required, using 'coat on coat' applications.
6	Allow enough time between coats for 'wet on tacky' application procedure. Leaving a coat to fully cure and dry will prevent the successive coat becoming an integral part of the system.
7	Full saturation and sealing should be achieved by the fourth (unthinned) application, even on low density timbers and in end grain situations.

WARNING: WHEN USING EVERDURE, CARE SHOULD BE TAKEN TO PREVENT SKIN CONTACT. ACCIDENTAL SPLASHES SHOULD BE WASHED OFF IMMEDIATELY WITH SOAP AND WATER. USE ONLY IN WELL VENTILATED AREAS.

complete boatcare range

Introducing the International Boatcare range of products. Each product in the International Boatcare range is designed to both beautify and protect your boat and have been formulated with ease of use in mind. These products can be used either on their own or in combination with others. By following this simple 3-step multipurpose boatcare system you can care for your boat in the least amount of time! All International boatcare products are safe for painted, fibreglass, wood and metal surfaces.

3 step multi-purpose boatcare

All the products in this boat care range can be used individually or in combination with others, and have been specially designed with ease of use in mind. This complete range provides everything you need for in-season maintenance.

By following this simple 3 step guide you can clean, restore, polish and protect your boat in the least amount of time and achieve results that shine!

1: cleaning

All-Purpose Boat Soap

- Concentrated wash with a wax effect. Environmentally friendly formula, that leaves surfaces shiny and water repellant
- Can be used with fresh or salt water

Fibreglass ✔ ***Paint*** ✔ ***Wood*** ✔ ***Metals*** ✔

2: preparation & restoration

Heavy Duty Stain Remover

- Reactive gel formula, no need to scrub, will not run and is easy to control
- High strength, formula that aggressively and quickly removes stains, wax, yellowing, oxidation and waterline scum lines

Fibreglass ✔ ***Paint*** ✔ ***Wood*** ✔ ***Metals*** ✔

Light Duty Rubbing Compound

- Removes light scratches, minor oxidation and restores finish to topsides
- Will not dry or chalk during application, for a long working time

Fibreglass ✔ ***Paint*** ✔ ***Metals*** ✔

THE TEFLON® ADVANTAGE! *Teflon is an extraordinary and versatile technology known for its friction reducing, easy to clean and non-stick properties. It also adds durability and longevity to finishes. UV rays, salt, oil, bird droppings, acid rain along with engine exhaust, rust, and waterline stains all make the marine environment a very hazardous place for your boat. Teflon makes surfaces easier to clean, increases durability and adds a super low friction, non-stick, dirt repellent finish. Teflon technology is now available in PREMIUM TEFLON® MARINE WAX with Cleaner and UV PROTECTANT & TEFLON® WAX SEALER thereby making it easier to clean and protect your boat.*

Teflon
Only by DuPont

3: polishing & protection

Advanced 2 step polish & wax

Premium Teflon® Marine Wax with Cleaner

- One step cleaner wax that cleans, polishes and protects
- Teflon provides ease of cleaning and a super low friction, non-stick surface that leaves a high gloss dirt repellent finish

Fibreglass ✔ ***Paint*** ✔ ***Metals*** ✔

UV Protectant & Teflon® Wax Sealer

- Reactive formula hardens after 24 hours providing ultimate surface and wax protection
- Teflon provides ease of cleaning and a super low friction, non-stick surface

Fibreglass ✔ ***Paint*** ✔ ***Metals*** ✔

3 step woodcare

Enjoy the beauty of natural teak with this simple 3-step woodcare system. Clean, restore and protect your deck, hand and toe rails, cockpit gratings etc with minimum effort.

1: cleaning

All-Purpose Boat Soap

- Concentrated wash & wax Environmentally friendly formula, that leaves surfaces shiny and water repellant
- Can be used with fresh or salt water

2: restoration

Premium Teak Restorer

- Cleans and brightens teak in one step, revealing its natural color and grain
- Environmentally friendly water based formula, no heavy rinse is required

3: protection

Premium Teak Oil

- Traditional Scandinavian blend of oils for ultimate protection against the elements
- Easy to apply, fast drying, warm golden color for exterior and interior use

This section covers three important areas you need to consider, whatever job you are undertaking; Substrate Information, Equipment Guidelines and Health & Safety.

Top Tip everything else you need to know

Throughout this guide we have been stressing the importance of good and thorough preparation and priming. Taking the time to understand your substrate and its characteristics can often provide you with basic information to help identify possible problems you may encounter.

WORKING WITH FIBREGLASS

Fibreglass, or GRP as it is often known, is made from polyester resin reinforced with chopped or woven glass fibres. Once the resin sets to a hard matrix the resulting laminate is strong and rigid. The smooth exterior is a protective gelcoat, made from polyester resin.

Despite its obvious advantages, experience has shown that glass fibre is susceptible to the effects of sunlight and the marine environment.

There are 2 problems to be aware of:

Glass Fibre is prone to osmosis!
For detailed information see pages 36–40.

Gelcoats fade!
Eventually the gelcoat will begin to fade. This is the result of the attack of UV (Ultra Violet) light in sunlight. Polishing with wax may delay this, but eventually a coat of paint will be needed to protect the surface.

WORKING WITH ALUMINIUM

Aluminium is an excellent material for boats, but care needs to be taken in its use to ensure a good result. Aluminium alloys are prone to corrosion if untreated or damaged. When new alloys are exposed, an oxide layer forms on their surface.
The oxide layer does not protect the alloy in the long term when exposed to damp marine environments. Attention to the preparation of a new hull and the maintenance of an existing hull can save you considerable difficulties and costly repairs in the future.

Aluminium Inspection: Periodically the paint system will need to be removed in areas of stress and the corrosion treated. Careful inspection on an annual basis of all weld seams will allow for early identification of the occurrence of this problem.

Aluminium Compatibility: Aluminium reacts with some copper-based antifouling paints causing serious corrosion. Therefore antifoulings containing metallic copper or cuprous oxide should never be used on aluminium, whilst copper thiocyanate based antifoulings can be used if the aluminium is primed properly.

IMPORTANT: TO FIND MORE INFORMATION ON SUBSTRATES AND PREPARATION & PRIMING, VISIT OUR WEBSITE **yachtpaint.com**

WORKING WITH WOOD

Wood is the only natural boat building material used today, and although it generally requires more maintenance than the more common glass fibre vessels, a well cared for boat built of wood will always attract admiring glances when she slips into view.

The fibrous nature of timber means that it has a tendency to absorb moisture from the atmosphere, and swell and contract to varying degrees depending on the type of construction. For a varnish or paint coating to stay intact it will need to be quite flexible in nature. Moisture contents in wood can allow the growth of fungal spores, which leads to rotting and decay. Wood can also be subject to attack by marine borers, which eat the wood fibres. Wood therefore needs to be protected by good quality preservatives and coatings. Many different woods can be used, which can differ immensely.

HARDWOODS
Hardwood comes from slow growing deciduous trees. They have a tighter grain when compared to soft woods. This tight grain has good strength characteristics across the timber as well as along its length, making it particularly suitable for decorative application, as well as boat building.

Mahogany – *will last for many years in a marine environment with little protection as the seawater has an antiseptic quality. The same is not true with regard to fresh water, which will lead to rot and decay if allowed to permeate the wood fibres. Mahogany should, therefore, be protected from freshwater at all times and wherever possible washed down with seawater.*

Teak and Iroko – *are particularly oily timbers with a natural resistance to rot and decay. Additionally they contain silica, which gives them hardwearing characteristics.*

Oak – *Ferrous metals, such as steel and iron, react badly with oak due to the tannin in the fibres. This will cause dark staining and even chemical attack on the metal by the tannic acid, which is formed.*

SOFTWOODS
The grain in these woods is long, straight and generally wider spaced than hardwoods as these trees grow faster. This means that their strength is mostly along their length so they are used in such applications as masts and spars, tillers, rubbing strakes, oars and planked hulls.

WORKING WITH STEEL

Steel is a heat-treated alloy based on iron with a lower carbon content and small quantities of other elements. The high strength of steel in relation to the plate thickness and the ability to cut and bend it into many different shapes makes it a suitable material for building hulls and superstructures. Fastenings such as bolts and rivets are often a different alloy for added strength, while fittings contain added chromium, which makes it stainless and resistant to rust. Having stated that steel is a good material for building boats, it is important to be aware of some of the characteristics of the material in order to ensure good results.

Steel corrodes! The most common form of corrosion in steel is rust. For the reaction to take place, water must also be present. The marine environment is therefore an ideal place for rust to occur.
Steel stretches! Due to the high flexibility and strength of steel it is hard to break, but impact damage may well result in a dent owing to the metal stretching and deforming locally. This can present problems for a protective coating, which may not be so flexible.

Health & Safety

Labelling of Health and Safety precautions for paint products is a legal requirement and forms a specific section on our labels. However the words are laid down by law and are often difficult to understand. In this section we try to guide you through the symbols and text in order to enable you to take on board some of the advice given. In addition some further information is provided to make applying paint a safer job. Before starting work always read the label. Each tin will display a number of warning symbols and written warning phrases which will quickly indicate those areas where particular care should be taken. Potential risks, and measures needed to protect yourself during application, are shown below:

WARNING SYMBOLS

Corrosive – *This material will attack the eyes and skin and can give you burns.*
Harmful – *This material may harm you from skin contact, from breathing in or ingesting.*
The wording will indicate which.
Irritant – *This material may cause a skin rash.*
Highly Flammable – *A spark or cigarette end will start a fire, more easily than with petrol. Paint or thinners in tins, or vapours in the air, can catch fire or explode.*
General Precautions – *Other general safety precautions are detailed below and will help should any problem occur whilst using our paints.*

PERSONAL HEALTH

Avoid Ingestion – *Food and drink should not be prepared or consumed in areas where paint is stored or is being used. In cases of accidental paint ingestion seek immediate medical attention. Keep the patient at rest, do NOT induce vomiting.*

Avoid Inhalation – *The inhalation of solvent vapour from paint or dust from sanding can be reduced by the provision of adequate ventilation or extraction. If this is not sufficient or if specifically stated on the label, suitable respiratory protection should be used.*
Wear a cartridge type respirator when abrading old antifoulings with wet and dry paper – never burn off or dry sand antifouling as this may create harmful fumes or dust.

In badly ventilated areas wear an air fed hood or cartridge respirator with organic vapour filter. Solvent fumes are heavier than air. Breathing these fumes can make you dizzy, feel drunk and headachy and could even result in collapse. Read the label carefully and ensure that the recommended protection is worn.
Spray painting creates additional health hazards. Spray mists should not under any circumstances be inhaled. Read the label carefully and ensure recommended protection is worn; generally an air-fed hood is the best protection as it provides a fresh air feed to the user.

Avoid eye contact – *Eye protection should be used during application and when there is any risk of paint splashing on the face. Safety glasses or goggles are inexpensive, available from many DIY stores, and are well worth wearing. Use eyewear that complies with appropriate local standards. If material does contaminate the eye, it is recommended that the eye is flushed with clean fresh water for at least 15 minutes, holding the eyelids apart, and medical attention sought.*

Avoid skin contact – *Skin irritation can occur from contact with paint products. You should, therefore, always wear protective gloves and protective clothing when applying or mixing any paint products. Overalls, which cover the body, arms and legs, should be worn. Skin cream, of a non-greasy barrier type, may be used on the face.* ***DO NOT use petroleum jelly as this can help the absorption of paint into the body.*** *Remove rings and watch straps before commencing work, as these can trap paint particles next to the skin. Remove any paint that does get onto the skin by washing with warm water and soap or an approved skin cleanser. After washing, apply a skin conditioner. Never use solvent or thinners to clean the skin.*

THE RISK OF FIRE OR EXPLOSION

Most paints contain organic solvents – *some of which evaporate into the air upon opening the container.*
Any dangers can be reduced if a few simple precautions are taken:

- ***Avoid naked flames*** *where paint is being stored, opened or applied*
- ***Do not smoke***
- ***Store paint in a well-ventilated, dry place*** *away from sources of heat and direct sunlight*
- ***Keep the tin tightly closed***
- ***Avoid sparks*** *from metals, electrical appliances being switched on and off, or faulty electrical connections*
- ***Do not leave paint soaked rags lying around,*** *in the pockets of overalls or in waste bins*
  Some types of paint can dry out and auto-ignite

Equipment Guidelines

The equipment used for applying the finish can make a difference to the success of your project. Guidelines for the best equipment to use are always detailed on the paint can and if a particular type of brush or roller is required, it will be specified. Further details are available at yachtpaint.com, however, this section should give you a few pointers.

- ✓ **PAINT REMOVAL** *When removing old paint, a scraper should be used. Keep the tool sharp. A good idea is to round off the corners to minimise the risk of gouging. A 'dragging' type is usually more controllable than a 'pushing' type.*
- ✓ **SANDING** *When sanding, the amount of paper you will use will vary enormously. A very approximate guide would be one sheet per square metre of bare substrate, such as wood or glass fibre. It is always better to use a sanding block to achieve a smoother surface. For previously painted surfaces, half a sheet per square metre is a rough guide and rubbing down between coats will use a similar amount. ANTIFOULING MUST ONLY BE WET SANDED.*
- ✓ **PREPARATION** *A suitable stirrer will be needed to stir the paint prior to use; an old screwdriver is not suitable for this job. A pallet knife or stirring stick is best. Remove surface dust with a dust wipe. The area to be painted must be masked off using a high quality clean edged tape. There are two types available; paper masking tape which is suitable for antifouling, and high performance tapes which are suitable for topsides finishes and will prevent creep.*
- ✓ **BRUSHES** *It is always important to use a good quality brush, which is as large as you can comfortably use. A good brush is a good investment, which should be thoroughly cleaned after use.*
- ✓ **ROLLERS** *Generally, a medium pile roller can be used for antifouling application, and a small cell foam roller for gloss finishes. In some areas high density yellow foam rollers are available that are excellent for application of most products including antifoulings and Perfection Finish.*
- ✓ **SPRAY** *Application of all paint products by spray requires specialist equipment. When spraying two-pack products an air-fed mask must be worn. Spraying of two-pack polyurethane products at home is not advised.*

All paints are designed to allow application of the correct wet film thickness when applying the recommended number of coats. This is obviously only a guideline as different people will apply different thicknesses depending on their technique or the equipment used.

Problems of over-application can occur, but these are minimised by ensuring the correct over coating times are adhered to.

By ensuring the correct quantity of paint is applied as calculated using the coverage chart at the back of this manual, problems of under-application should also be minimised.

As already stated, the application method you choose will have a direct effect on the amount of paint that is applied in each coat. A rough guide to the amount of paint applied by the different methods is as follows:

APPLICATION METHOD	AMOUNT
FOAM ROLLER	20–40 MICRONS
MOHAIR ROLLER	20–50 MICRONS
BRUSH	20–60 MICRONS
CONVENTIONAL SPRAY	30–100 MICRONS
AIRLESS SPRAY	50–200 MICRONS

COVERAGE CHART

PRODUCT	COVERAGE SQM/LITRE (BRUSHING)	NUMBER OF COATS
ANTIFOULING**		
MICRON OPTIMA	8.3	2-3†
MICRON EXTRA	10.0	2-3†
MICRON CSC	8.7	2-3†
MICRON 66	6.0	3-4†
VC OFFSHORE WITH TEFLON®	11.0 by spray	2-3†
ULTRA	9.4	2-3†
LONGLIFE	7.8	2-3†
COPPERCOAT	8.7	2-3†
BOTTOMKOTE	8.5	2-3†
TRILUX®	10.5	2-3†
TRILUX® 33	9.0	2-3†
INTERSPEED 2000	8.5	2-3†
CRUISER® SUPERIOR	8.5	2-3†
ANTI-OSMOSIS		
INTERPROTECT®	9	UP TO 5
GELSHIELD® PLUS	6.6	4
PRIMERS & UNDERCOATS		
INTERPROTECT®	9.0	UP TO 5
YACHT PRIMER	10.0	4
PA 10®	1.5 per spray can	1–2
PRIMOCON	7.4	1–5
ETCH PRIMER	18	1
EVERDURE	8–16	Varies
PREKOTE	9.0	1–2
PERFECTION UNDERCOAT	8.5	1–2
PAINT FINISHES		
BRIGHTSIDE®	13.5	2
PERFECTION	12	1–2
INTERDECK	9.5	1–2
VARNISHES*		
GOLDSPAR® ORIGINAL	18.0	6–10 EXTERIOR
GOLDSPAR® SATIN	10.3	2–3 INTERIOR
SCHOONER® TROPICAL	20.0	6–10 EXTERIOR
PERFECTION	11.0	5(M) EXTERIOR
CETOL®	10	4
GLUES/FILLERS AND EPOXIES		
EPIGLUE®	2.0 @ 0.5mm thick	Varies
EPIFILL®	2.0 @ 0.5mm thick	Varies
EPIGLASS® HT9000®	VARIES ON USAGE	Varies
INTERFILL® 833	2.0 @ 0.5mm thick	Varies
INTERFILL® 835	1.25	1–2
MISCELLANEOUS		
INTERGRIP	VARIES ON USAGE	1

KEY: SQUARE METRES NO.OF COATS **(M)** MINIMUM **†** SEASON

*Coverage will vary according to wood type and first coat coverage will be lost. **Always read the label. Use pesticides safely.

alphabetical index

PAINT PRODUCTS & THE ENVIRONMENT

Containers – *Dispose of old cans carefully. Do not discard cans or pour waste into watercourses, use the facilities provided. It is best to allow paints to harden before disposal.*
Brushes – *When cleaning brushes, dispose of the waste solvent carefully.*
Old antifouling and wash down – *Collect removed paint chippings/dust and dispose of correctly. When washing down or scrubbing old antifouling, avoid contamination of water courses by collecting water washings.*

IN ALL CASES, CONTACT YOUR LOCAL AUTHORITY FOR INFORMATION ON WASTE DISPOSAL FACILITIES

yachtpaint.com

- *Comprehensive boat painting guide*
- *Product data sheets*
- *Handy hints and tips*
- *Frequently asked questions*
- *Where to buy International Paint products*

And much more info to help make painting your boat easy!

Authorised Dealer:

International Paint
Unit E54
76 Waterway Drive, Coomera
Queensland 4209
Tel: 61 (0) 7 5573 9600
Fax: 61 (0) 7 5573 9677
Technical Helpline: 1800 251 431

International Paint
686 Rosebank Road
PO Box 19995
Avondale, Auckland 7
Tel: 64 (9) 828 3009
Fax: 64 (9) 828 1129
Technical Helpline: 0800 808 807

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