
HEMPEL
Keep Sailing
2012
Paint Manual

Contents

Why do I need to paint my boat?

We need to paint for a whole number of reasons. As well as decoration and appearance, painting helps protect your boat, makes it easier to clean and safer to sail. By creating a film between a substrate (surface) and the environment, paint protects:

Steel & aluminium	against	**Corrosion**
GRP	against	**Osmosis**
Wood	against	**Rot and weathering**
Underwater areas	against	**Fouling**
Decks	against	**Abrasion**

Once the surface is protected, paint can be used to enhance the appearance of your boat.

SYB

HEMPEL
Keep Sailing

Preparing to paint

- Planning the job
- Temperature and humidity
- Personal protection
- Surface preparation
- Application methods and tools
- Choosing the right paint system

Planning the job

General considerations:

- Consider the total process, including surface preparation and paint application.
- Decide on the type of paints you're going to use.
- Consider drying, curing and recoating intervals.
- Consider anticipated temperatures and weather conditions.

Indoor and outdoor painting advice:

- If you're painting **indoors,** make sure there's plenty of ventilation so the paint solvents evaporate and the paint cures properly.
- If you're painting **outside,** pick a calm weather day. This minimises the risk of dust pollution on the paint surface, and allows solvent based paints to flow out naturally, which will improve the final finish.

SVB

Temperature and humidity

Our paints are very tolerant to varying conditions. The drying/curing and re-coating times we give in this guide are (unless otherwise stated) based on:

- temperatures of 10°C and 20°C
- relative humidity (RH) of 60–65%
- a well ventilated working area.

Temperature

You may need to adjust these drying/curing times depending on the conditions. As a guide:

- double drying/curing times for a drop of 10°C
- halve drying/curing times for a rise of 10°C
- adjust accordingly between these temperatures.

Remember that paint properties change with temperature variation.

At lower temperatures, paint thickens so may need thinning. Always note correct/maximum thinner ratios, and take care not to add more than is recommended.

Avoid painting above recommended maximum temperatures, as the faster drying/curing rates reduce the paint's flowing properties, and this can result in visible application marks. This can also happen if you paint in direct sunlight, where the surface has a much higher temperature than the surrounding (ambient) temperature.

Check minimum application temperature of the paint you are using as the paint will not cure below it, resulting in poor film formation, poor adhesion between coats and unsatisfactory gloss finishes.

Relative humidity

Ideally, relative humidity should not be above 65%. (You can measure humidity with a hygrometer.)

A good test is to moisten the surface to be painted. If it dries within 10–15 minutes it should be okay to paint.

Key Advice:

Do not paint outdoors too early or too late in the day, when there's a risk of condensation or dew.

Personal protection

Ensure you wear suitable protective clothing, including gloves and glasses. Read labels carefully and follow all application and health & safety advice. Open cans with care. Don't eat or drink in the vicinity of stored or applied paint.

	What are the hazards	The equipment to use
 *Eyes*	Chemical splash, dust, paint particles and droplets, projectiles, vapour.	Safety spectacles, goggles, face shields, visors.
 *Breathing*	Breathing dust, vapour, fumes, aerosols, oxygen-deficient atmospheres, paint particles.	**Short term filtering mask** against dust while sanding. **Half facemask** for sanding and painting, can be disposable or with replaceable filter cartridges. **Full air feed facemask** for spray painting.
 *Hands*	Abrasion, cuts and punctures, impact, chemicals, solvents, liquid paints, skin infection.	Leather gloves, latex gloves, armlets.
 *Hands*	Dust, dirt, oil and grease, paint particles.	**Barrier cream:** short term protection. **Cleaning cream:** designed to remove contaminates and cause least skin damage. **Maintenance cream:** to help restore the skin's natural protective layers.

	What are the hazards	The equipment to use
 *Hearing*	Damage to inner ear from loud or constant noise levels.	Ear defenders, ear muffs, ear plugs.
 *Body*	Chemical or paint splash, spray from spray guns, impact or penetration, dust, excessive wear or entanglement of own clothing.	Overalls, coveralls.
 *Feet*	Wet, slipping, cuts and punctures, falling objects, chemical and paint splash, abrasion.	Steel toe protection and anti-slip soles. May be a pre-requisite on some sites.
 *Head*	Impact from falling objects, head bumping, hair entanglement.	A range of helmets and bump caps.

Surface preparation:
1. Removing old paint and antifouling

Removing old paints and antifoulings can be easier with Paint Stripper, which is a highly effective solvent based paint remover, and can be used on most painted or varnished surfaces.

- Test a small section to see how long the whole job is likely to take.
- Apply **Paint Stripper** liberally by brush or roller a dry surface.
- Take caution on plastics (it may harm some thermoplasts).
- Don't do too big an area at once.
- Leave for 15 – 30 minutes until the paint coat dissolves or lifts. (Antifoulings, alkyd paints and varnishes react quickest, silicone and epoxy take longer.)
- We recommend putting aluminium foil over the treated area to help stop active solvents evaporating.
- Scrape off old paint, clean with hot water and **Pre-Clean**.
- Old or thick coatings may need a repeat treatment.

Key Advice:

If you're using a hot air gun, use at low temperature and take great care.

Alternatives to Paint Stripper

Abrading. Use coarse paper for coatings, being careful not to damage the substrate. Wet abrade antifoulings to avoid inhaling toxic dust particles.

Hot air guns can remove paints and varnishes, but not antifoulings as toxic fumes are released.
Don't damage/burn the substrate!

Paint scrapers work for varnishes and paints, but not antifoulings.

Wet abrade

Hot air gun / paint scraper

Paint scraper

2. Cleaning and degreasing

Good surface preparation is the key to achieving a great finish. Part of this preparation is making sure the surface is free from dirt and contamination.

Pre-Cleaning

Pre-Clean is a high strength cleaner and degreaser for pre-cleaning gelcoat and painted surfaces in order to remove fuel, oil, grease, waxes and silicones. You should use this before painting, and for deep cleaning.

- Dilute 1 part **Pre-Clean** to 20 parts water for general cleaning, 1:10 for more demanding cleaning jobs.
- Don't use on bare or untreated wood, as it may absorb the water.

You can also use **Pre-Clean** to clean brushes covered in part cured paint.

Degreasing

Use **Degreaser** to remove surface contaminants, especially wax or silicone on new gelcoat. Do not use it on single component conventional paint systems, as the solvents in **Degreaser** can damage the coating.

- Work in a well ventilated area using a clean absorbent, lint free cloth soaked in **Degreaser.**
- Using the soaked cloth in a longitudinal motion, clean 1m^2 at a time, changing the cloth surface before the next section – wear solvent resistant gloves and eye protection while doing this.
- Wipe excess **Degreaser** from the surface using a new dry cloth.

Key Advice:

Check the surface for grease by sprinkling it with water. If pearly drops form, the surface is still greasy and needs a further treatment with **Degreaser**. If the water flows out evenly, no grease is left on the surface.

For general cleaning, see Boatcare section, page 66-71.

3. Abrading

After cleaning the surface you're going to paint, it must be abraded to the correct profile. This is usually called "keying" the surface. After keying, it's essential to remove any dust before painting.

Dry abrading

Dry abrading is recommended for:

- removing old paint (not antifouling)
- sanding filler
- initial preparation of wood, aluminium, steel, lead and GRP.

Dry sanding creates a lot of dust, so you should always wear a good quality particle mask and eye protection. Dry abrasive paper is available in various grades and comes in sheets, disks or on a roll. To ensure even hand abrading, wrap the paper around a cork sanding block.

Do **not** dry abrade antifoulings. They must always be wet abraded to avoid inhaling toxic dust particles.

Size paper to fit block

Wrap paper around block

Dry abade

Wet Abrading

Due to the lubricating action of the water, there is minimum paper clogging and a clean surface can be quickly achieved.

Wet abrasive paper is available in sheets in various grades, and should be used around a cork sanding block to ensure an evenly abraded surface.

Antifoulings must always be wet abraded to avoid inhaling toxic dust particles.

Wet abrasive paper

Wet abrade

Remove soiled water

Choosing the right grade paper

Surface to abrade	Dry paper grade	Wet paper grade
Gelcoat before priming for antifouling	150	180
Gelcoat before priming for topcoat	150-180	240
Bare wood	80-240	n/a
Bare metal	60-120	n/a
Epoxy filler (2 component)	60-100	n/a
Unifiller (1 component)	240	n/a
Painted surface	150-180	180-240
Varnished surface	220	240
Old/deteriorated gelcoat	80-120	120
Hard antifouling for a racing finish	n/a	400-1200
Before final coat of varnish or topcoat	280-400	600-800

Mechanical Abrading

The most popular types are:

Belt Sander

For rapidly removing material on flat surfaces.

Random Orbital/Dual Action Sanders

Rapidly removes material from most surfaces. With the correct paper grades, you can use these sanders all the way from rough sanding to final sanding before topcoat application.

Orbital Sander

General purpose sander for most preparations. Uses standard abrasive paper, making it an economic choice.

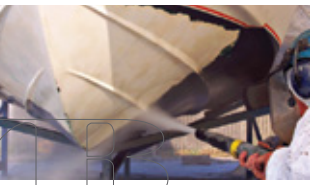
Key Advice:

- Only use drill machine attachments and angle grinders for rough abrading as they can cut in and leave marks.
- Only lightly sand plywood and veneered surfaces to avoid sanding through the thin layer of veneer.

Abrasive Blasting

Blasting leaves the ideal surface for new coatings. Grit, slurry and sand are good for this. For aluminium and stainless steel, use a non-metallic abrasive, such as garnet.

This is usually carried out by a professional with the right equipment, but you can hire a high pressure hose with attachments.



Application methods and tools

There are four main tools: brush, roller, paint pad and spray equipment. Alongside the description of each product in this manual, we recommend the best application tool.

Brush

Advantages

Versatile, low cost and often the most suitable way to paint complex objects. For rough surfaces, a brush works paint in better than any other method.

Good practice

- Use a good quality brush that's as large as possible for the job.
- Don't use a new brush for the final coat, as they tend to shed bristles.
- For best results, work 'crisscross' on a manageable area. Brush from side to side, then up and down.
- Continue until the paint is evenly distributed over the area, with your final strokes being very light ("laying-off") and vertical. (See Paint Pad on the next page for an alternative way of laying off).
- Paint with the brush at an angle of 45° to minimise brush marks.
- During painting, the paint will start to cure on the brush. Clean the brush approximately every 30 minutes for consistency.

Roller

Advantages

A low cost, versatile tool with similar advantages to brush application. Rollers are particularly good on broad, even surfaces, where they're faster than brushing and the correct roller head can give excellent results.

Good practice

- If speed is more important than finish, use a short pile mohair roller.
- Small diameter felt and closed cell foam rollers are recommended for a better quality finish.
- In all cases use the crisscross technique to distribute the paint evenly.
- After applying by roller, laying off the paint with a brush or pad will give an improved finish.
- Before using a new felt or mohair roller, wrap masking tape around the roller and then pull it off. This will remove any loose fibres.

Paint pad

Advantages

Although you can paint from scratch with a pad, they're most effective for laying off paint already applied by brush or roller. This eliminates almost all application marks, and gives an excellent finish.

Good practice

- Use the pad immediately after you've applied the paint.
- Draw the pad in one direction only, using vertical strokes to avoid a paint build up which may sag.

Spatula

Advantages

Different sizes and shapes of spatula are available for various fillers and tasks.

Good practice

- If using a two component filler, mix small amounts at a time.
- Wipe the spatula clean during and after use.

Spray equipment

Advantages

It's generally accepted that a spray gun gives the best results.

Good practice

- Where possible, work inside to ensure a steady temperature with low humidity.
- Always wear a full air fed mask when spraying two pack products.

An important part of choosing the right tool is knowing how thick your paint needs to be, thus how much area you'll be able to cover. Paint coat film thickness is measured in micron. (1 micron = 1/1000 mm).

How to measure film thickness

You can use a wet film thickness (wft) gauge if coating depth is critical, but normally it's sufficient to calculate the area to be covered and apply the **recommended** amount of paint. This should ensure the correct thickness.

Our specifications supply this information, listing the litres required per square metre.

Factors to bear in mind

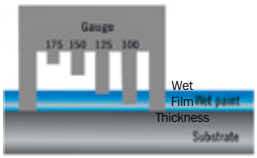
- Thickness alters as paint dries, because solvents evaporate. (An exception is High Gel Protect Protect – it's solvent-free, so the thickness is the same wet and dry.)
- An irregular surface means a larger area, and therefore more paint.
- Some surfaces absorb more paint than others.
- When it's cold, paint is thicker and more difficult to distribute evenly.

How much will I get?

Tool/method	Wet film thickness (micron)
Plastic foam roller	20–40
Felt roller	30–60
Mohair roller	40–80
Brush	20–80
Air spray	25–150

Key Advice:

Don't try to apply more than the specified amount of product for one coat, as this can cause problems with curing and solvent entrapment which may result in coating failure.



Choosing the right paint system

It's important to choose the best system for your requirements. A little time spent now could save costly mistakes. For most applications we offer two types of coating system: Single Component (Conventional) and Two Component (High Performance).

	ONE COMPONENT	TWO COMPONENT
PROTECTION	Good / Conventional	Good / High
USAGE	Easy to use. Use on substrates where movement is possible such as clicker or carvel hulls.	Some experience needed. Consideration to temperature and overcoating times required. Use where movement of substrate is minimal.
COMPATIBILITY AND OVERCOATING	One component primer can only be overcoated with one component system/ topcoat.	A two component primer can be overcoated either by one component or two component system/ topcoat.
DURABILITY	Good but less durable than two componet systems.	Generally twice as durable as single componet systems.

HEMPEL
Keep Sailing

Painting advice and specifications

- General painting advice for all substrates
- Painting glassfibre
- Painting metal
- Painting and varnishing wood
- Painting decks, bilges and lockers
- Painting keels
- Painting propellers, outdrives and sterngear
- Mast protection
- Repainting all substrates

General painting advice

This section contains general painting advice, as well as advice for painting on specific surfaces.

Before painting, ensure....

- the substrate has been cleaned and degreased
- all cracks and blemishes, above and below the waterline, have been fine filled with **Epoxy Filler** or **Unfiller**
- the surface has been abraded to provide a suitable key, then washed with fresh water and allowed to dry
- any dust on the surface has been removed with a tack rag.

General tips when painting

- Thoroughly prepare the surface – this is key to a successful finish.
- To avoid dust rising, dampen the ground before painting.
- Always stir paint thoroughly with a flat blade to an even consistency.
- Stir paint periodically while applying.
- Pour enough paint for the job into a suitable container. With single pack products, resealing the lid maintains the paint for next time.
- It's often easier if two people carry out brush and roller painting, with the first person applying the paint with a roller and the second person laying-off with a brush.
- Remove any masking tape before the paint completely cures. This will help avoid exaggerated edges.

General good practice when painting

- Open cans with care.
- Immediately clean up spills.
- Don't eat or drink in the vicinity of stored or applied paint.
- Wear appropriate personal protection equipment.
- Ensure adequate ventilation for the product used. If necessary use a respirator.
- Always read the label thoroughly. If you're not sure what's needed, contact your local Hempel office.
- Any surface to be painted must always be thoroughly cleaned and primed.

Key Advice:

Check previous coating system for compatibility to intended new coating system.

Fill along boottop

Fairing any defects

Filling

To fill, build up a surface to the required profile or spot fill (minor defects), apply chosen filler onto a roughened, clean, primed surface.

When spot filling, use a filling knife or spatula.

For large profile filling, use a wide filling knife or trowel.

If there are small cracks in gelcoat, you may need to widen the crack to create enough space to apply the filler.

Ensure you use the correct amount of filler. If you use too much, you'll need more sanding to produce a fair surface.

When filling deep holes or large areas, apply a number of layers of filler to eliminate the chance of overfilling or sagging on vertical surfaces.

Fairing

Once the filled area has cured, sand the filled and surrounding area to the required fair profile.

Spot Fairing

For best results, sand by hand using abrasive paper on a cork block to the required fair profile.

Fairing large areas

Large areas can be faired using a range of tools. Initial fairing can be carried out using a sander with rough grade discs, followed by a random orbital or orbital sander with lighter grade discs for a fairer surface. Skill is needed when using these tools.

It's often more successful to use a manual fairing board. Although it's slower, it can easily produce a smooth, fair surface.

Apply antifouling over primer

Wet scrape to remove old antifouling

Antifouling

Most antifoulings are compatible and can easily be overcoated, however:

- The surface must be in good condition, free from contaminates.
- Hard antifoulings leave an exhausted layer of resin at the end of the season. Wet abrade surface before applying new anti-fouling.
- You can overcoat Teflon antifouling, if it's in good condition and has been washed. *Do not* abrade before applying new antifouling.
- A traditional/soft antifouling should be sealed with **Underwater Primer** before applying an erodible or hard antifouling on top of it.
- Keep the antifouling product indoors before painting as it's easier to apply if it has been stored at "room" temperature.
- Always give antifoulings a good stir with a bladed instrument before applying, as they contain heavy pigments which can settle.
- Apply an extra coat along the waterline and the leading edges, where water flows strongest.
- It's not advisable to thin antifoulings. However, in particularly cold conditions, thinning it by up to 10% will help with application.
- Never dry sand old antifouling, as the dust is toxic.

Key Advice:

If you're changing your antifouling, check the instructions for applying the new product onto your existing product. If in doubt, apply a tiecoat of an antifouling primer.

Repainting all substrates

Maintaining coatings helps the protection, appearance and value of your boat. Both two component and single component finishes need repainting. How often varies from boat to boat, depending on the existing paint system, usage, general wear and tear, mooring conditions and UV degradation.

Above the waterline

If the existing coating is intact

- Wash with **Pre-Clean** and freshwater to remove surface contamination.
- Allow to dry fully.
- Abrade with 180–280 grade paper.
- Freshwater rinse and allow to dry.
- Apply undercoat where necessary, followed by 1–2 coats of topcoat, using the relevant painting specifications.

Where the coatings are damaged

You may need to fill and prime first.

- Degrease the surface thoroughly with **Pre-Clean** or **Degreaser** (depending on substrate).
- Abrade with 100–240 grade paper.
- Freshwater wash and allow to dry.
- Spot prime and fill where needed, using appropriate materials.
- Fair areas that have been filled.
- Apply primer, undercoat and topcoat using relevant painting specification

Please remember 2 component products should not be applied to any single pack system.

Fill using blade

Spot fill using spatula

Spot prime

Below the waterline

We recommend new antifouling once a year for good protection.

If the existing coating is intact

Overcoat using the same antifouling:

- Wash the surface with **Pre-Clean** and freshwater, remove any loose paint and allow to dry.
- Apply two coats of antifouling.
- See page 45 for more information.

Where the coatings are damaged

You may need to fill and prime first.

- Wet abrade (100–240 grade paper).
- Wash with **Pre-Clean** and freshwater, then allow to dry.
- Spot prime and fill where needed, using appropriate materials.
- Fair filled areas, apply more coats of primer to encapsulate the filler.
- Allow to dry fully before applying primer and antifouling from relevant painting specification.

Clean abraded surface

Apply **Underwater Primer** onto prepared surface

Apply antifouling over primer or tiecoat

Painting substrates
Glassfibre

Glassfibre, or GRP (glass reinforced plastic), is a polyester resin strengthened by glass fibres, making a high strength, low weight material which requires little maintenance.

Painting glassfibre

The outer shell of the glassfibre has a layer of gelcoat. New gelcoat contains large residues of wax and mould-release agents that must be removed before painting. Use **Pre-Clean** or **Degreaser** to remove mould release agents used in the construction of the vessel. Abrade the surface (150-180 grade paper). Remove dust.

Repainting glassfibre

Over time gelcoat becomes old and weathered. This will cause the cosmetic appearance to deteriorate, and eventually it will need painting to protect the surface. Generally the deck and coach roof will deteriorate sooner than the topsides.

The extent of the degradation depends on many factors:

- colour and pigment of the gelcoat,
- if the gelcoat has been maintained,
- condition of where the vessel is kept e.g. strong UV light,
- mechanical damage,
- weathering, etc.

Key Advice:

Old gelcoat will probably still bear residues of wax and mould-release agents and it will be necessary to carry out a degreasing procedure.

Glassfibre

Glassfibre – single pack system/conventional

Product	No of coats	Recoating interval 10ºC	Recoating interval 20ºC	Coyers (m^2/ltr)	Thickness per coat wft	Thickness per coat dft	Thinner
Above the waterline							
Coating steps: 1. Primer & Undercoat 2. Topcoat							
1. Primer Undercoat	2	8h - 60d 12 h - 30d	4h - 30d 6 h - 15d	8.5 11.0	120 100	60 50	No 1
2. Brilliant Gloss	1	48h - 6d	24h - 3d	11	90	50	No 1
3. Brilliant Gloss	1	20h - 6d	10h - 3d	-	-	-	No 1
Below the waterline							
Coating steps: 1. Primer & tiecoat 2. Antifouling							
1. Underwater Primer	1–2	6h – indefinite	3h – indefinite	8	125	50	No 1
2. Hempel Antifouling onto Underwater Primer	2–3	9h – indefinite	5h – indefinite	13	75	40	No 3

Glassfibre – two component system/high performance

On Glassfibre always apply 2K products as a first coat.

Product	No of coats	Recoating interval 10ºC	Recoating interval 20ºC	Coyers (m^2/ltr)	Thickness per coat wft	Thickness per coat dft	Thinner
Above the waterline							
Coating steps: 1. Primer & Undercoat 2. Topcoat							
1. Light Primer Yacht Polyprimer 5%	2	8h - 60d 12 h - 30d	4h - 30d 6 h - 15d	8.5 11.0	120 100	60 50	No5 No2,6
2. Polygloss Ocean Gloss onto Light Primer	1	8h - 6d	4h - 3d	15	75 100	35 30	No 2, 6 No 6,7,8
Polygloss Ocean Gloss	1	36h - 10d 12 h - 14d	16h - 5d 6 h - 7d	15	75 100	35 30	No 2 No 6,7,8
Below the waterline							
Coating steps: 1. Primer & tiecoat 2. Tiecoat 3. Antifouling							
1. Light Primer thinned 5%	up to 4	8h - 60d	4h - 30d	8	120	60	No 5
2. tiecoat - **Underwater Primer** onto Light Primer	1	2h - 4h*	1h - 2h*	10	100	40	No 1
3. Hempel Antifouling onto Underwater Primer	2–3	9h - indefinite	5h - indefinite	13	70	40	No 3

* for best results overcoat **Light Primer** with **Underwater** primer when the surface is almost dry but still has a slight tacky feel.

Ferrocement

Ferrocement is a specialised form of reinforced concrete in which a matrix of steel rods and fine mesh is covered in a high quality mortar to produce a material of tensile strength and flexibility.

It is a relatively inexpensive boat building material with the advantage of being fire resistant, durable and easy to repair. However, it is heavier and highly skilled plasterers and painters are needed to produce a finish comparable with other boat building materials. It is recommended to use a two pack painting system on ferrocement.

Particular tips for painting ferrocement

Ensure new ferrocement is fully cured.

Stone down the ferrocement with a hand-held medium grit carborundum stone lubricated with fresh water or wet abrade with 120 grade wet or dry abrasive paper.

Alternatively, wet or dry abrasive blast the hull to get a slightly roughened and firm surface, free of scum layer and contamination.

Any loose wires or tie-ends exposed during this process should be punched below the substrate and filled.

Acid wash the surface using 5% w/w (approx) nitric acid or phoshoric acid solution. Leave for 2 - 4 minutes then rinse off with fresh water.

Check the pH reading of the surface of the substrate is between 6.5 and 8.0 and when scraped with a sharp knife, a clean scratch is left.

Allow the surface to dry naturally.

Product	No of coats	Recoating interval		Covers (m^2/ltr)	Thickness per coat		Thinner
		10ºC	20ºC		wft	dft	
Above the waterline Coating steps: 1. Initial primer 2. Primer & undercoat 3. Topcoat							
1. Light Primer thinned 20%	1	8h – 60d	4h – 30d	8.5	140	60	No 5
2. Light Primer thinned 5%	2–4	8h – 60d	4h – 30d	8.5	120	60	No 5
3. Polygloss	1	8h – 6d	4h – 3d	–	75	35	No 2 brush, No 6 spray
Ocean Gloss					100	30	No 6,7,8
4. Polygloss	2	36h – 10d	16h - 5d	15	75	35	No 2 brush, No 6 spray
Ocean Gloss		12 h - 14d	6 h - 7d		100	30	No 6,7,8
Below the waterline Coating steps: 1. Initial primer 2. Primer & undercoat 3. Tiecoat 4. Antifouing							
1. Light Primer thinned 20%	1	8h – 60d	4h – 30d	8.5	140	60	No 5
2. Light Primer thinned 5%	5	8h – 60d	4h – 30d	8.5	120	60	No 5
3. Tiecoat **Underwater Primer** onto Light Primer	1	2h – 4h	1h – 2h	10	100	40	No 1
4. Antifouling onto Underwater Primer	2-3	9h - indefinite	5h - indefinite	13	75	40	No 3

Metal

Steel and aluminium are widely used in boat construction due to their strength, ease of fabrication and water tightness.

In the marine environment, they need painting to ensure resistance to corrosion and for a cosmetic finish.

With the correct surface preparation and paint system, steel and aluminium hulls will give long periods of service with minimal maintenance.

Particular tips for painting metal

It's essential that the paint system completely isolates the metal surface from air and water.

Metal plates are often pre-primed with a protective shop primer. This isn't intended to be part of the coating system, and ideally should be removed before starting the coating.

Before working on metal, it must be free of corrosion. Remove salt and contamination by high pressure (min 2500 psi) freshwater washing.

Grit blast steel to Sa2.5 (Swedish Visual Standard, ie near white metal), or abrade. Grit blast aluminium with non-metal abrasives, or abrade with 60-120 grade paper to bright metal.

Prime bare metal with **Light Primer**, thinned 20%, straight after surface preparation to avoid contamination and surface deterioration before coating, and to obtain maximum adhesion to the surface.

Check surface temperature before coating, as metal surfaces can vary greatly from the ambient temperature.

Steel – single pack/conventional

Product	No of coats	Recoating interval		Coyers (m^2/ltr)	Thickness per coat		Thinner
		10°C	20°C		wft	dft	
Above the waterline							
Coating steps: 1. Primer & Undercoat 2. Topcoat							
1. Primer Undercoat	3–4	8h – 6d	4h – 3d	12	100	40	No 1
2. Brilliant Gloss onto Primer Undercoat	–	8h – 6d	4h – 3d	–	–		–
2. Brilliant Gloss	2	20h - 6d	10h - 3d	11	90	50	No 1
Below the waterline							
Coating steps: 1. Primer & Tiecoat 2. Antifouling							
1. Underwater Primer	3–4	6h – indefinite	3h – indefinite	10	100	40	No 1
2. Hempel Antifouling onto Light Primer	2–3	9h – indefinite	5h – indefinite	13	75	40	No 3

Steel – two component/high performance

Product	No of coats	Recoating interval		Coyers (m^2/ltr)	Thickness per coat		Thinner
		10°C	20°C		wft	dft	
Above the waterline							
Coating steps: 1. Primer & Undercoat 2. Topcoat							
1. Light Primer Yacht Polyprimer 5%	2	8h - 60d 12 h - 30d	4h - 30d 6 h - 15d	8.5 11.0	120 100	60 50	No 5 No 2,6
2. Poly Gloss Ocean Gloss onto Light Primer	1	8h - 6d	4h - 3d	15	75 100	35 30	No 2,6 No 6,7,8
3. Poly Best Ocean Gloss	1	36h - 10d 12 h - 14d	16h - 5d 6 h - 7d	15	75 100	35 30	No 2,6 No 6,7,8
Below the waterline							
Coating steps: 1. Initial primer 2. Primer & undercoat 3. Tiecoat 4. Antifouling							
1. Light Primer thinned 20%	1	8h – 60d	4h – 30d	8.5	140	60	No 5
2 Light Primer thinned 5%	5	8h – 60d	4h – 30d	8.5	120	60	No 5
3. Tiecoat **Underwater Primer** onto Light Primer	1	2h – 4h	1h – 2h	10	100	40	No 1
4. Hempel Antifouling onto Underwater Primer	2–3	9h – indefinite	5h – indefinite	13	75	40	No 3

Aluminium – two component/high performance

Product	No of coats	Recoating interval		Coyers (m^2/ltr)	Thickness per coat		Thinner
		10ºC	20ºC		wft	dft	
Above the waterline							
Coating steps: 1. Initial primer 2. Primer & undercoat 3. Topcoat							
1. Light Primer thinned 20%	1	8h – 60d	4h – 30d	8.5	140	60	No 5
2. Light Primer thinned 5%	2–4	8h – 60d	4h – 30d	8.5	120	60	No 5
3. Polygloss / Ocean Gloss onto Light Primer	1	8h – 6d	4h – 3d	15	75 - 00	35 - 30	No 2 brush, 6 spray No 6,7,8 spray
4. Polygloss / Ocean Gloss	1	36h – 10d	16h – 5d	15	75	35	No 2 brush, 6 spray No 6,7,8 spray
Below the waterline							
Coating steps: 1. Initial primer 2. Primer 3. Tiecoat 4. Antifouling							
1. Light Primer thinned 20%	1	8h – 60d	4h – 30d	8.5	140	60	No 5
2. Light Primer thinned 5%	4-5	8h – 60d	4h – 30d	8.5	120	60*	No 5
3. Tiecoat **Underwater Primer** onto Light Primer	1	2h – 4h	1h – 2h	10	100	40	No 1
4. Antifouling onto Underwater Primer	2–3	9h – indefinite	5h – indefinite	13	75	40	No 3

* Minimum total dft requirement 300 micron.

Varnishing wood

Wood is a naturally occurring organic material that can suffer from several problems in the marine environment.

Being biodegradable, wood is food for various organisms, from rot-inducing fungi to boring worms and crustacea that turn it to crumbling honeycomb.

It can also absorb water, causing movement that adversely affects a coating system's adhesion.

By correctly preparing the surface and using an appropriate coating system, you can overcome these problems – and enhance wood's natural beauty.

Before painting

Check the wood's moisture content with a moisture meter. Only paint if the moisture content is below 13%.

Particular tips when painting and varnishing wood

Consider the construction of the substrate, remembering that it's not advisable to put a two component system onto carvel or clinker built wooden hulls, as they require the greater flexibility of a single pack system.

Sand wood with the grain using 80–120 grade abrasive paper to provide a key for the paint system.

Clean wood by wiping **Thinner No 1** along the grain with a cloth, then allowing it to dry. Oily woods such as teak and iroko should be degreased by wiping **Degreaser** along the grain, which will remove some of the natural oil content on the surface and ensure a greater bond with the first coat.

Note: *Both paint and varnish finishes are available in single component and two component systems for wood protective coatings.*

Remove old varnish with hot air gun

Sand surface

Woods commonly used in boats

Oak

Yellowish brown, dense hardwood. Can be slightly oily in nature. Contact with ferrous metals will cause staining and corrosion.

Uses: Ribs and frames, interior joinery and panelling.

Mahogany

Reddish brown hardwood with good working properties and durability.

Uses: Planking, interior joinery and panelling.

Teak

Dark golden brown hardwood, which – being naturally oily – has excellent durability.
Uses: Planking hull and deck, interior and exterior joinery and panelling.

Key Advice:

Take care when sanding as dust is an irritant.

Cedar

Pinkish brown hardwood of medium density.

Uses: Hull planking.

Larch

Pale reddish brown softwood that bends well and will take impact.

Uses: Hull planking.

Ply/Marine Ply

Layers of wood glued together creating an exceptionally strong and inflexible composition.

Uses: mainly for hull planking for dinghies and smaller boats.

Spruce

Light brown soft wood with poor self preserving. Low density.

Uses: hull planking.

Pitch Pine

Light brown soft wood with fair self preserving. Medium density.

Uses: Hull planking

Wood – single pack system/conventional

Product	No of coats	Recoating interval		Covers (m^2/ltr)	Thickness per coat		Thinner
		10°C	20°C		wft	dft	

Above the waterline

Wood Impreg	2 - 4	16 - none wet-wet	8 - none wet-wet	3 - 6	-	-	No 1
				depends on wood			

First coat in wood systems should be always WOOD IMPREG.

Coating steps: 1. Initial primer 2. Primer & undercoat 3. Topcoat

1. Grey Metallic Primer	1	24h - 14d	12h - 7d	10	100	45	No 1
2. Primer Undercoat*	2 - 4	8h - 6d	4h - 3d	12	100	40	No 1
3. Brilliant Gloss onto Primer Undercoat	1	8h - 6d	4h - 3d	-	-	-	-
4. Brilliant Gloss	2	20h - 6d	10h - 3d	11	90	50	No 1

*You can use **MultiCoat** as an alternative to **Primer Undercoat**;
and also as an alternative topcoat to **Brilliant Gloss** if you want a semi-gloss finish.

1. MultiCoat thinned up to 20%	1	16h - 10d	8h - 5d	12	100	40	No 1
2. MultiCoat thinned up to 10%	1	16h - 10d	8h - 5d	12	90	40	No 1
3. MultiCoat	2 - 3	16h - 10d	8h - 5d	12	80	40	No 1

Below the waterline

Coating steps: 1.Primer 2. Primer & tiecoat 3. Antifouling

1. Underwater Primer thinned up to 20%	1	6h - indefinite	3h - indefinite	10	100	32	No 1
2. Underwater Primer	2 - 4	6h - indefinite	3h - indefinite	10	100	40	No 1
3. Hempel Antifouling onto Primer Undercoat	2 - 3	9h – indefinite	5h – indefinite	13	75	40	No 3

Wood – two component system/high performance

Product	No of coats	Recoating interval		Covers (m^2/ltr)	Thickness per coat		Thinner
		10°C	20°C		wft	dft	
Above the waterline							
Coating steps: 1. Initial primer 2. Primer & undercoat 3. Topcoat							
1. Light Primer / Yacht Polyprimer thinned up to 20%	1	8h-60d 12h-30d	4h-30d 6h-15d	8,5 11	120 100	60 50	No5 No 2,6
2. Light Primer Yacht Polyprimer thinned 5%	2	8h-60d 12h-30d	4h-30d 6h-15d	8.5 11	120 100	60 50	No 2,6 No 6,7,8
3. Polygloss / Ocean Gloss onto Light Primer / Yacht Polyprimer	1	8h - 6d	4h - 3d	-	-	-	-
4. Polygloss Ocean Gloss	2	-	-	15	75 100	35 30	No 2,6 No 6,7,8
Below the waterline							
Coating steps: 1. Initial primer 2. Primer 3. Tiecoat 4. Antifouling							
1. Light Primer thinned up to 20%	1	6h - indefinite	3h - indefinite	8.5	140	60	No 5
2. Light Primer thinned 5%	4	6h - indefinite	3h - indefinite	8.5	120	60	No 5
3. Tiecoat **Underwater Primer** onto Light Primer*	1	2h - 4h	1h - 2h	10	100	40	No 1
4. Hempel Antifouling onto Primer Undercoat	2–3	9h - indefinite	5h – indefinite	13	75	40	No 3

* For best results overcoat Light primer with Underwater primer when **Light Primer** is almost dry but still tacky.

Wood – varnish

Product	No of coats	Recoating interval		Covers (m^2/ltr)	Thickness per coat		Thinner
		10°C	20°C		wft	dft	

First coat in wood system should be always **Wood Impreg.**

Wood Impreg	2 - 4	16 - none	8 - none	3 - 6	-	-	No 1
		wet-wet	wet-wet	depends on wood			
Favourite Varnish Varnishing steps: 1. Initial primer 2. Second primer 3. Varnish finish							
1. Favourite Varnish thinned up to 30%	1	12h - 4d	6h - 2d	16	80	30	No 1
2. Favourite Varnish thinned up to 10%	1	12h - 4d	6h - 2d	16	65	30	No 1
3. Favourite Varnish thinned 5% except last coat	4	12h - 4d	6h - 2d	16	60	30	No 1
Classic Varnish Varnishing steps: 1. Initial primer 2. Second primer 3. Varnish finish							
1. Classic Varnish thinned up to 30%	1	16h - 4d	8h - 2d	18	70	30	No 1
2. Classic Varnish thinned up to 10%	1	16h - 4d	8h - 2d	18	60	30	No 1
3. Classic Varnish thinned 5% except last coat	4	16h - 4d	8h - 2d	18	55	30	No 1
Dura-Gloss Varnish Varnishing steps: 1. Initial primer 2. Second primer 3. Varnish finish							
1. Dura-Gloss Varnish thinned up to 30%	1	8h - 4d	4h - 2d	17	75	25	No 1
2. Dura-Gloss Varnish thinned up to 10%	1	8h - 4d	4h - 2d	17	70	25	No 1
3. Dura-Gloss Varnish thinned 5% except last coat	4	8h - 4d	4h - 2d	17	60	25	No 1
Dura-Satin Varnish Varnishing steps: 1. Primer & build 2. Varnish finish							
1. Dura-Gloss Varnish to build up coats (see above)	4–5	8h - 4d	4h - 2d	17	60	25	No 1
2. Dura-Satin Varnish finish coat only	1	8h - 4d	4h - 2d	17	60	25	No 1
Diamond Varnish Varnishing steps: 1. Initial primer 2. Second primer 3. Varnish finish							
1. Diamond Varnish thinned up to 30%	1	32h - 10d	16h - 5d	12	110	40	No 2
2. Diamond Varnish thinned up to 10%	1	32h - 10d	16h - 5d	12	95	40	No 2
3. Diamond Varnish thinned 5% except last coat	4	32h - 10d	16h - 5d	12	85	40	No 2

Decks, bilges and lockers

The most suitable and used product for coating deck areas on all boats is a high-wear paint with a non-gloss finish. This gives durability, and minimises reflection from the deck.

Particular tips when painting bilges and lockers

A lot of time and effort is spent on the external appearance and protection of a boat, but internal areas such as bilges and lockers shouldn't be neglected.

Ensure adequate ventilation while painting the bilge area.

A brush is generally easier and quicker, particularly on the uneven surfaces found in these areas.

For general cleaning of bilges use **Pre-Clean.** If the bilges are excessively dirty, clean first with **Degreaser**.

Particular tips when painting decks

To prepare a patterned deck, use either a scouring pad or a copper wire brush.

When adding **Anti-Slip Pearls** to the paint, mix small amounts in at a time to get the right consistency. A 160gm tub of **Anti-Slip Pearls** is enough for at least 1.5 litres of paint, depending on how much anti-slip you want (50 gm for a 750 ml tin of paint). Glassfibre decks with anti-slip moulding may not need **Anti-Slip Pearls**.

For more even coverage use a roller rather than a brush to apply **Non slip deck coating.**

For a higher gloss finish, **Anti-Slip Pearls** can be added to **Brilliant Gloss** and **PolyGloss**.

Decks, bilges and lockers - onto suitably primed substrate

Product	No of coats	Recoating interval		Covers (m^2/ltr)	Thickness per coat		Thinner
		10°C	20°C		wft	dft	
Bilge & Locker Paint for bilges and lockers	2 - 3	16h - 10d	8h - 5d	12	100	40	No 1
Non slip Deck Coating for decks	1	6h - 8h	2h - 4h	9.5	100	50	No 3
	1	6h - 10d	3h - 5d	9.5	100	50	No 3

If max. overcoating time is exceeded abrade between coats.

Keels

Keels are made from steel, cast iron, lead or occasionally a combination of a cast iron fin with a lead ballast.

Preparation for Lead Keel

High pressure fresh water hose and allow to dry. Abrade with 40–60 grade abrasive paper. Remove dust with a soft brush and follow chosen specification below.

Preparation for Cast Iron and Steel Keel

Shot blast or abrade to bright metal. Remove dust and grit by brushing, vacuuming or using dry compressed air. Follow chosen specification below.

Iron steel and lead keels – single pack/conventional

Coating steps: 1. Primer 2. Antifouling

Product	No of coats	Recoating interval 10°C	Recoating interval 20°C	Covers (m²/ltr)	Thickness per coat wft	Thickness per coat dft	Thinner
1. Underwater Primer	5	6h - indefinite	3h - indefinite	10	100	40	No 1
2. Hempel Antifouling onto Underwater Primer	2 - 3	9h - indefinite	5h - indefinite	13	75	40	No 3

Iron steel and lead keels – two component system/high performance

Coating steps: 1. Primer 2. Tiecoat 3. Antifouling

Product	No of coats	Recoating interval 10°C	Recoating interval 20°C	Covers (m²/ltr)	Thickness per coat wft	Thickness per coat dft	Thinner
1. Light Primer (thin 1st coat to 20%) Primer onto Light Primer	4	8h – 60d	4h –30d	8.5	120	60	No 5
2. Tiecoat **Underwater Primer** onto Light Primer	1	2h - 4h	1h - 2h	10	100	40	No 1
3. Hempel Antifouling onto Underwater Primer	2 - 3	9h - indefinite	5h - indefinite	13	75	40	No 3

For best results overcoat Light primer with Underwater primer when **Light Primer** is almost dry but still tacky.

Propellers, outdrives and sterngear

Any bronze and aluminium underwater needs protecting. They're prone to the same fouling and corrosion as all underwater areas, and – as they directly affect your boat's efficient and safe propulsion – it's important you correctly maintain them.

Due to the excessive movement and water turbulence in these areas, the endurance of any coating is tested, particularly on the propeller.

Preparation

Thoroughly clean with **Pre-Clean** and freshwater. Abrade with 80–120 grade paper. Wash with freshwater and allow to dry, before applying relevant specification (see below).

Repainting

Due to the excessive wear and tear in this area, repainting usually involves a complete strip back followed by full painting specification.

Key Advice:

Take care never to overcoat the anodes, as this adversely affects performance.

Propellers

Product	No of coats	Recoating interval 10°C	Recoating interval 20°C	Coyers (m²/ltr)	Thickness per coat wft	Thickness per coat dft	Thinner
By brush							
Coating steps: 1. Primer 2. Antifouling							
Underwater Primer	1	6h - indefinite	3h - indefinite	10	100	40	No 1
AluXtra	2	see Products > Antifouling and bottom coats		13	75	40	No 3
By spray							
Coating steps: 1. Primer 2. Propellor protection							
Prop-Primer	2	2h	1h	7	75	15	NA
Mille Drive	2–4	20 mins	10 mins	7	75	15	NA
Light Primer spray	2	*wet-wet 4h-60d	2h - 30d	3/400 ml can	175	50	NA
Mille Drive / Prop AF	2-4	20 mins	10 mins	7	75	15	NA

* recoat with spray
** recoat with AF

Outdrives

Product	No of coats	Recoating interval 10°C	Recoating interval 20°C	Covers (m^2/ltr)	Thickness per coat wft	Thickness per coat dft	Thinner
By brush							
Coating steps: 1. Initial primer 2. Tiecoat 3. Antifouling							
1. Light Primer	1 - 2	8h - 60d	4h - 30d	8.5	120	60	No 5
2. Tiecoat **Underwater Primer** onto Light Primer	1	2h - 4h	1h - 2h	10	100	40	No 1
3. Antifouling onto Underwater Primer	2 - 3	9h - indefinite	5h - indefinite	13	75	40	No 3
By spray							
Coating steps: 1. Primer 2. Propeller protection							
Prop-Primer	2	2h	1h	7	75	15	NA
Mille Drive /Prop AF	2-4	20 mins	10mins	7	75	15	NA

Light Primer spray	2	*wet-wet 4h-60d	2h - 30d	3/400 ml can	175	50	NA
Mille Drive / Prop AF	2-4	20 mins	10 mins	7	75	15	NA

* recoat with spray
** recoat with AF

Mast Protection

Cleaning and protecting unpainted aluminium masts, spars and rigging.

Any aluminium and anodised surfaces will benefit from being cleaned and protected.

Alu-Protect

A silicone free oil which cleans and leaves a long lasting protective layer.

Clean the mast thoroughly with **Pre-Clean** and then apply **Alu-Protect** with a rag. **Alu-Protect** penetrates into wire ropes and under fittings, ensuring long term protection.

Apply regularly to ensure masts and fittings are protected throughout the season.

HEMPEL
Keep Sailing

Osmosis

- What is osmosis and how is it caused?
- Protection
- Treatment
- Using Gel/High Protect

What is osmosis and how is it caused?

When two liquids with different concentrations are separated by a semi-permeable membrane, one liquid will penetrate the membrane causing the volume to increase pressure to develop.

What does this mean to us?

In our case the semi-permeable membrane is the gelcoat of the glassfibre boat and the liquid is water. In time water will be absorbed into the GRP. Whilst most of this moisture will pass directly through the hull into the bilges with little damage, a certain amount will eventually start to break down some of the materials used in the laminate itself which will lead to a build up of “osmotic” fluids. Osmotic fluid contains acetic acid and glycol and has a higher molecular weight to water which can make it unable to pass back through the gelcoat or laminate. As more moisture is absorbed through the GRP, a hydraulic effect occurs which eventually leads to blisters being formed in the gelcoat. Most unprotected glassfibre boats at some stage during their life will develop osmotic symptoms to some degree. The timescale and extent of this depends upon various factors including temperature and type of water, periods afloat versus ashore and, most importantly, the quality of the original laminate.

Recognising the problem

The first visual signs of osmosis will be the formation of blisters in the gelcoat.
When pierced the liquid contents of an osmotic blister will have a sour smell similar to vinegar. Osmosis can be detected before any visual symptoms appear by checking the moisture content of the hull with a moisture meter, although this will only give an indication and it is recommended that professional advice is sought to determine the degree of the problem and what future action to take. HEMPEL have Approved Osmosis Treatment Centres who are qualified to assist you; contact HEMPEL for an up-to-date list.

Paint blisters and lifts

Osmosis protection

When to use an osmosis protection.

New boats

The best initial defence against osmosis is the correct methods and materials used during build. The higher the standard of the GRP laminate at construction, the greater the defence against osmosis. The addition of **Gel/High Protect** will give the ultimate protection to a new hull.

Used boats

Before applying a protective epoxy coating to older boats the condition of both the laminate and gelcoat need to be assessed. If in doubt, seek professional advice. If the hull condition is suitable, Osmosis Protection can be carried out using **Gel/High Protect**, if the condition is not good enough Treatment is recommended.

Preparation and specification for osmosis protection.

New boats

New gelcoat should be cleaned thoroughly with **Degreaser** or **Pre-Clean** to remove mould release agents used in the construction of the hull. For more information refer to Surface preparation: cleaning and degreasing, on page 11.

After degreasing, the surface should be abraded with 60-100 grade abrasive paper, or lightly slurry blasted, and washed off with fresh water. When dry the hull should have an even matt finish.

Used boats

Remove all old paint or antifouling by manual dry scraping or having the hull grit or slurry blasted (this is a quick and efficient way of removing the old paint layers and also provides a well keyed surface which will require little extra preparation). Whichever method is used the hull should have an even matt finish with no trace of previous coatings. Freshwater wash the hull and allow to dry. Any minor cracks and blemishes should be primed and filled with **Epoxy Filler**.

Key advice:

Correct surface preparation is vital for a long-lasting protective finish. Time spent at this stage is well invested.

Protection

Coating steps: 1. Primer (if required) 2. Filler (if required) 3. Osmosis protection

Product	No of coats	Recoating Interval		Covers	Thickness per coat		Thinner
		10°C	20°C		wft	dft	
1. Light Primer	1	18h - 11d	8h-5d	8.5	120	60	No 5
2. Epoxy filler (if needed)	–	16h - 48h	8h - 24h	-	-	-	do not thin
3. Gel/High Protect	2	18h - 11d	8h - 5d	5	200	200	do not thin
Tiecoat option 1 Coating steps: 1. Primer 2. Antifouling							
1. Light Primer thinned 5% onto Gel Protect	1	18h - 11d	8h - 5d	8.5	120	60	No 5
2. Hempel Antifouling onto Light Primer	2	2h - 8h	1h - 4h	13	75	40	No 3
Tiecoat option 2 Coating steps: 1. Primer 2. Antifouling							
1. Underwater Primer onto Gel/High Protect	1	18h - 27h	8h - 12h	10	100	40	No 1
2. Hempel Antifouling onto Underwater Primer	2 - 3	9h - indefinite	5h - indefinite	13	75	40	No 3

Moisture reading

Gelcoat Peeling

Osmosis treatment

When to use an osmosis treatment.

If the laminate and/or gelcoat is poor and there are indications of osmosis, a full Osmosis Treatment may be required. Full treatment involves the removal of the gelcoat which, under the correct conditions, will allow the hull to dry out to the recommended levels, before coating the bare laminate with **Gel/High Protect**, replacing the gelcoat to give the hull a moisture resistant coating.

Preparation and specification for osmosis treatment.

Preparation

The gelcoat will need completely removing to allow the hull to dry out.

Hand Power Tools

Grinders provide an inexpensive means of removing the gelcoat and preparing the surface. The disadvantage is the time to complete the task and the amount of dust produced. Protective clothing must be worn by the operator, especially dust mask and eye protection

Slurry or Abrasive Blasting

Either of these methods successfully remove the gelcoat and prepare the hull for the application of **Gel/High Protect**. Any hull defects will become apparent during blasting, ie voids in the laminate. A professional with the correct equipment is needed to carry out either of these methods.

Gelcoat Peeling

A gelcoat peeler, planes away the gelcoat at a preset depth resulting in an even and smooth finish. This is generally accepted as being the most effective method for removing gelcoat. Once peeled, the surface will require abrading with 40 grit grinding disks, or light slurry blasting to provide a key for the **Gel/High Protect**. This method requires a professional operator.

Once the gelcoat has been removed, the hull should be steam cleaned, or at least pressure washed to remove salts and other contaminates which are present in the laminate due to osmosis. The salts and other contaminates will continue to come to the surface so it is necessary to repeatedly wash the hull, once a day is recommended.

On average a hull can take between 4 weeks and 3 months before it is dry enough to recoat. Expert advice at this stage is essential to ensure that the hull is adequately prepared for the application of **Gel/High Protect**.

Any minor cracks and blemishes to the hull should be filled after the first coat of **Gel/High Protect** with **Epoxy Filler**.

Treatment

Coating steps: 1. Filler (if required) 2. Osmosis protection

Product	No of Coats	Recoating interval 10°C	Recoating interval 20°C	Covers (m^2/ltr)	Thickness per coat wft	Thickness per coat dft	Thinner
1. Epoxy filler (if needed)	-	16 - 48h	8h - 24h	-	-		do not thin
2. Gel/High Protect	3	18h - 11d	8h - 5d	5	200	200	do not thin
Tiecoat option 1							
Coating steps: 1. Primer 2. Antifouling							
1. Light Primer thinned 5% onto Gel/High Protect	1	18h - 11d	8h - 5d	8.5	120	60	No 5
2. Hempel Antifouling onto Light Primer	2	2h - 8h	1h - 4h	13	75	40	No 3
Tiecoat option 2							
Coating steps: 1. Primer 2. Antifouling							
1. Underwater Primer onto Gel/High Protect	1	18h - 27h	8h - 12h	10	100	40	No 1
2. Hempel Antifouling	2–3	9h – indefinite	5h – indefinite	13	75	40	No 3

For best results overcoat **Light Primer** with **Underwater primer** when the surface is almost dry but has a slight tacky feel.

Key advice:

Correct surface preparation is vital for a long-lasting protective finish. Time spent at this stage is well invested.

Using Gel/High Protect

Stir base

Stir curing agent

Pour curing agent into base

Stir both products well

Pour into trays

How to apply Gel/High Protect for both Protection and Treatment

From the moment the **Gel/High Protect** base and activator are mixed together the product will start its chemical hardening reaction. Only mix as much as can be applied during the pot life (45 mins @ 20ºC). Higher temperatures will decrease the drying time and pot life.

Apply **Gel/High Protect** with a felt roller (lay-off the surface with a brush if an improved surface finish is needed). **Gel/High Protect** should be applied at a minimum of 200 micron thickness per coat, this can either be measured using a wet film thickness gauge or by working out the surface area of the boat and calculating the correct amount of **Gel/High Protect** needed per coat (1 litre of **Gel/High Protect** will cover 5m^2 at 200 micron). **Gel/High Protect** has a minimum application temperature of 10°C, if possible keep the job at a steady temperature with low humidity, best achieved under cover. NOTE: **Gel/High Protect** must not be thinned.

Apply **Gel/High Protect** with roller

Lay off **Gel/High Protect** in opposite direction with brush

Curing

Gel/High Protect should be touch dry within 6 to 8 hours.

If the temperature drops below 10 °C **Gel/High Protect** is likely to stop curing. The curing will start again once the temperature increases, however an inadequate curing temperature may cause amine sweating to occur. This is a condition where a thin film of amine carbomate forms on the surface of the epoxy and this amine sweat must be degreased or washed off with fresh water before overcoating.

Planning overcoating times is essential to avoid rubbing down between coats. See painting specifications for more detail.

Full cure of **Gel/High Protect** will take approximately 10 days at 20°C. Subsequent coats of primer and antifouling can be applied. (See specification table on previous page). It is recommended that the boat is not launched during this period as it could affect the curing of the coating.

Good practice

- If **Gel/High Protect** application cannot be carried out indoors, it is advisable to erect a cover around the hull to provide protection from the elements.
- If **Gel/High Protect** is being applied at 10°C, keep the product indoors at normal room temperature before use.
- Move the tape line up with each coat to avoid a hard ridge at the waterline.
- **Gel/High Protect** is produced in 2 colours to allow application of alternative layers of cream and grey to ensure total coverage of each coat.
- Stir both the base and activator of **Gel/High Protect** thoroughly before mixing together. Once mixed together, again stir well to achieve an even consistency.
- Do not thin **Gel/High Protect**.
- Thorough surface preparation and the careful following of all instructions is the key to a successful finish.

HEMPEL
Keep Sailing

Our products

- Primers and undercoats
- Fillers
- Antifoulings and bottom coats
- Topcoats
- Varnishes
- Teak treatment
- Thinners
- Boatcare

Primers and undercoats

Selecting the right primer will protect the boat's substrate, avoid early failure of a subsequent painting system and enhance the final finish. (See 'Choosing the right paint system' on page 16.)

Primer Undercoat

A single component primer for all substrates (including steel) above the waterline, and an undercoat for **Brilliant Gloss/Multicoat/Non slip Deck Coating** . A quick-drying, high-opacity primer and undercoat, that gives excellent durability and surface stability ready for overcoating with single component topcoats.

750ml

2.5ltr

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	6 hrs	8 hrs – 6 days	Thinner No 1	12m²/ltr	
20°C	3 hrs	4 hrs – 3 days			

Grey Metallic Primer

For use on all substrates above the waterline especially wood and steel, under a conventional paint system.

750ml

2.5ltr

10°C/50°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	4 hrs	24h - 14d	Thinner No 1	10m²/ltr	
20°C	2 hrs	12h - 7d			

Underwater Primer

Use as part of a single component system below the waterline, including keels; and as a tiecoat before antifouling. Can be applied directly onto the hull or a primed surface, and between an existing antifouling and a new antifouling. Fast-drying with excellent waterproofing.

750ml

2.5ltr

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	4 hrs	6 hrs – indefinite	Thinner No 1	8m²/ltr	
20°C	2 hrs	3 hrs – indefinite	Thinner No 3 (spray)		

Antifouling Primer

A single component primer and tiecoat for use below the waterline. Formulated for use with white and light coloured antifoulings. Fast drying with excellent waterproofing properties.
Can be applied directly onto a prepared or primed hull before antifouling. Also for use as a tiecoat between an existing and new antifouling.

2.5ltr

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thnner/Tool clean	Covers	Tools
10°C	3 hrs	6 hrs – indefinite	Thinner No 1	8m²/ltr	
20°C	1 hr	3 hrs – indefinite	Thinner No 3 (spray)		

Prop Primer

Aerosol. An anti-corrosive primer for a large variety of substrates. Particularly recommended as a primer for outdrives and propellers. **Prop Primer** has very good adherence to most substrates. Fast drying, easy to apply with a matt finish. Overcoat with Mille Drive or appropriate antifouling Gel/High protect.

500ml

Temp	Touch dry	Re-coat (min/max)	Tool clean	Covers
10°C	40 mins	2 hrs – none	none	3.5m²/ltr
20°C	20 mins	1 hr – none		

Light Primer

A two component high performance epoxy primer and undercoat for use both above and below the waterline. Use on glassfibre, wood, steel and aluminium. Superb corrosion, impact and water resistance. Use before **Ocean Gloss/ PolyGloss/Brilliant Gloss** topcoat for a long-lasting solution. Can also be used for osmosis protection when application is required at low temperatures.

375ml

750ml

2.5ltr

10°C/50°F Minimum application temperature

Pot life at 20 dgrs:
Mixed product 2 hrs
Pot life at 10dgrs:
Mixed product 4hrs

Mix ratio
2:1

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	8 hrs	8 hrs – 60 days	Thinner No 5	8.5m²/ltr	
20°C	4 hrs	4 hrs – 30 days			

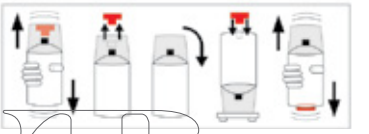
Light Primer Spray

Light Primer Spray is a two component epoxy primer spray for the protection of all substrates, including aluminium, above and below the waterline. Particularly recommended for maintenance, spot repair, touch-up and as a primer for small uncoated surface areas. Can also be used as a primer before antifouling application on propellers.

400ml

Temp	Touch dry	Re-coat (min/max)	Tool clean	Covers
10°C	40 mins	2 hrs – none	none	3.5m²/ltr
20°C	20 mins	1 hr – none		

Product activation:
Shake can. Remove red button from lid. Turn can upside down. Push red button into valve at bottom of can. Hold can in a vertical position and shake can vigorously until agitator ball is heard; continue shaking for a further 2 minutes.



Recoat interval table:

Surface temperature		10ºC / 50º F	20ºC / 68ºF
HEMPEL'S LIGHT PRIMER SPRAY 455EX	Wet-wet	Flash off 40-50 mins	Flash off 15-20 mins
	Minimum	4 hours	2 hours
	Maximum	60 days	30 days
ANTIFOULING	Minimum	4 hours	2 hours
	Maximum	8 hours	4 hours
POLYURETHANE, 2K Ex. OCEAN GLOSS 55500	Minimum	8 hours	4 hours
	Maximum	6 days	3 days
ALKYD ENAMELS Ex. BRILLIANT GLOSS 53200	Minimum	48 hours	48 hours
	Maximum	14 days	14 days
BEFORE APPLICATION OF 1K TOPCOAT, ALWAYS ABRADE			
Fully cured		14 days	7 days

Gel/High Protect

A solvent free two component high build epoxy. For use above and below the waterline. An excellent osmosis protection or treatment which can be applied at, and will dry to, a very high film thickness. Can be a substitute for **Light Primer** where solvent emissions are a consideration. Do not thin.

750ml

2.5ltr

10°C/50°F Minimum application temperature	Pot life at 10 dgrs. -1h 30 min. Pot life 20 dgrs : 45 min	Mix ratio
	Mixed Product: 45mins	3:2

Temp	Touch dry	Re-coat (min/max)	Tool clean	Covers	Tools
10°C	22–27 hrs	18 hrs – 11 days	Thinner No 5	5m²/ltr	LAY-OFF
20°C	10–12 hrs	8 hrs – 5 days			

BELOW WATERLINE

SUBSTRATE / PRIMERS	Underwater Primer	Antifouling Primer	Light Primer	Gel Protect
Glassfibre	✓	✓	✓	✓
Steel	✓	✓	✓	
Aluminium	✓	✓	✓	
Wood	✓	✓	✓	
Components:	1	1	2	2
Subsequent coats:	Antifouling	White Antifouling	Antifouling	Underwater Primer Light Primer

* Antifouling can be applied onto Light Primer providing the final coat of Light Primer is tacky.
If the Light Primer dries, then a coat of Underwater Primer will need to be applied as a tiecoat.

ABOVE WATERLINE

SUBSTRATE / PRIMERS	Primer Undercoat	Grey Metalic	Polyprimer	Light Primer
Glassfibre	✓**	✓	✓	✓
Steel	✓	✓	✓	✓
Aluminium				✓
Wood	✓	✓	✓	✓
Components:	1	1	2	2
Subsequent coats:	Brilliant Gloss Multicoat Non slip Deck Coating	Primer Undercoat Brilliant Gloss Multicoat Non Slip Deck Coating	Poly Gloss Ocean Gloss *	Poly Gloss, Brilliant Gloss & Ocean Gloss

* These products could be overcoated with 1K products as **Brilliant Gloss** or **Multicoat.**
Let it dry (completely) and abrade the surface before overcoating.

** Always abrade

Fillers

Filling and fairing will streamline the surface of your boat, improving hull performance through the water, and giving clean, smooth lines on the topsides. If the substrate is damaged, you'll need structural filling and fairing.

Unifiller

A single component conventional filler. Use for spot filling minor blemishes and screwheads above the waterline. When filling larger areas, you may need to apply several layers as **Unifiller** shrinks on curing.

5°C/40°F Minimum application temperature

Temp	Touch dry	Dry to sand	Tool clean	Film thickness	Tools
10°C	4.5 hrs	7 hrs	Thinner No 3	0.5mm per coat	
20°C	2 hrs	3 hrs			

Epoxy Filler

A two component, solvent free, epoxy filler. Use for a variety of filling and fairing jobs both above and below the waterline. Can be applied in thick coats up to approximately 5mm without runs or sags. Fair before overcoating with relevant primer.

5°C/40°F Minimum application temperature — **Pot life at 20°C** Mixed product: 1hr — **Mix ratio** 1:1

Temp	Touch dry	Re-coat (min/max)	Tool clean	Film thickness	Tools
10°C	16 hrs	16 - 48 hrs	Degreaser	5mm per coat	
20°C	8 hrs	8 – 24 hrs	99611		

Antifoulings and bottom coats

Fouling not only makes a boat look unsightly, it can also foul propellers and outdrives, block engine water inlets and outlets, slow down the boat speed, increase fuel costs and ultimately damage the hull substrate/surface.

Painting a boat's underwater area:

- protects its substrate/surface
- avoids undue hull roughness. (Roughness increases resistance through the water, causing lower speeds and consuming more fuel.)

Fouling varies widely depending on temperature, salinity and water quality. Differences in levels and types can be dramatic, even on boats moored in what seems to be the same environment, as fouling conditions are affected by sunlight/shade, temperature and flow of water, pollution levels and water inflows.

Fouling grows faster in sunlight, so is first seen on the waterline and rudder. Water surface dirt and pollution can adversely affect the antifouling.

How antifouling works

Antifouling paints release bioactive ingredients. The bioactive materials used today are mainly cuprous oxide and booster organic biocides. They're water-soluble and, when released, lethal to fouling organisms.

Different types of antifouling paint release biocides/toxicants in different ways. There are three main types:

- **Self Polishing/Erodible**
- **Hard**
- **Traditional/Soft.**

These are explained on the next page.

Choosing the right product

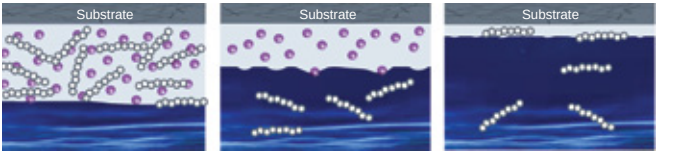
You should consider:

- boat type
- sailing pattern & speed
- geographic location and characteristics of the mooring
- any existing coating
- environmental and legislative issues in the area where you apply the product and sail.

Key advice:

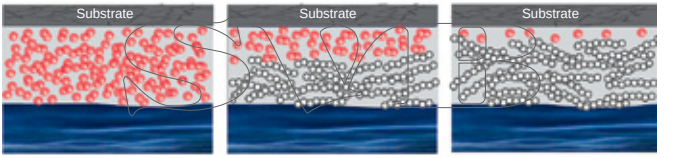
Put extra layers on the rudder and waterline where more aggressive water flow takes place.

In **self polishing/erodible antifoulings**, a resin of active ingredients (biocides) repels/discourages fouling. Once in water, the resin breaks down in a controlled way, continually exposing fresh biocide layers. This gives constant performance throughout the season, and reduces build-up of old antifouling.



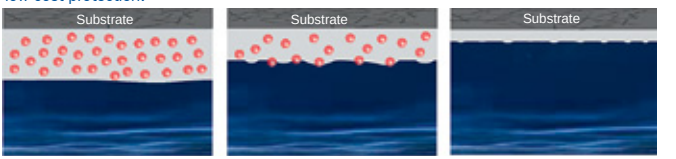
Start of lifetime | Half of lifetime | End of lifetime

In **hard antifoulings**, the coat's high levels of insoluble resin make it hard and stop erosion. The resin's packed with active ingredients, and the particles are so close that as one dissolves the next is exposed. Hardness and durability makes these antifoulings ideal for fast power boats, mud-berthed vessels and racing yachts (burnishing the antifouling with wet abrasive paper before launch gives a smooth finish).



Start of lifetime | Half of lifetime | End of lifetime

In **traditional/soft antifoulings**, a simple resin (gum rosin or rosin derivatives) disperses active ingredients with the binder. Water soluble, it progressively dissolves/erodes, giving low cost protection.



Start of lifetime | Half of lifetime | End of lifetime

Antifouling toxicants *Dissolved resin*

Applying antifouling

Applying Hard Racing Boottop

How much do I need?

As hull designs vary, this table is only a guide.

The figure shows the total amount you need for two coats.

LOA	6m 20ft	7.5m 25ft	8.5m 28ft	10m 33ft	11.5m 38ft	13m 43ft	14.5m 48ft	16m 53ft	18m 60ft	20m 66ft	23m 76ft
Fin keel 	**2ltr**	**3ltr**	**4.5ltr**	**5.5ltr**	**7ltr**	**8.5ltr**	**10ltr**	**12ltr**	**14ltr**	**16ltr**	**19ltr**
750ml	3	1	3	1	3	2	0	3	2	2	2
2.5ltr	0	1	1	2	2	3	4	4	5	6	7
Full keel 	**2.5ltr**	**4ltr**	**5.5ltr**	**7.5ltr**	**9ltr**	**11ltr**	**13ltr**	**15.5ltr**	**19ltr**	**23ltr**	**28ltr**
750ml	0	2	1	0	2	2	1	1	2	1	1
2.5l	1	1	2	3	3	4	5	6	7	9	11
Motor cruiser	**3ltr**	**5ltr**	**6.5ltr**	**8.5ltr**	**10.5ltr**	**13ltr**	**15ltr**	**17.5ltr**	**22ltr**	**27.5ltr**	**34tr**
750ml	1	0	2	2	1	1	0	0	3	0	2
2.5l	1	2	2	3	4	5	6	7	8	11	13

Important:

Amount of paint may vary depending on type/model of vessel. Calculations are approximate.

Glide Speed

Hard and exceptionally strong antifouling containing TecCel, for a smoother surface with reduced friction.

Glide Speed gives increased speed and excellent protection throughout the season and is specially designed for power boats and racing yachts.

With the correct preparation it can be applied on to all Hempel and other leading manufacturer´s antifouling. Suitable for all substrates except alluminium. Max. launch time 3 months. HSE:8349. HSE: 8432(white)

2.5ltr

5°C/41°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	8 hrs	9 hrs – none	Thinner No 3	13m²/ltr	
20°C	4 hrs	5 hrs – none			

Hard Racing

Hard, high strength antifouling which gives a smooth racing finish, offering all round competitive performance. Formulated especially for power boats, racing yachts and vessels which are mud berthed. It may also be used on vessels that are dry sailed. Suitable for all substrates except aluminium. Maximum launch time 3 months. HSE: 7385, HSE (white) 6969

750ml

2.5ltr

5°C/41°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	8 hrs	9 hrs – none	Thinner No 3	13.5m²/ltr	
20°C	4 hrs	5 hrs – none			

Ocean Performer

Strong erodible, 2 component, solvent based antifouling system for ultimate performance. **Ocean Performer** is designed to reduce antifouling build up and give balanced and controlled film release throughout the season. After adding **Ocean Active** the mixed product has a two day pot life at 10°C, making it more convenient to use than other alternative 2 component antifouling. It is suitable for all substrates except aluminium. Maximum launch time 2 months. HSE: 6968.

2.5ltr

5°C/41°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	8 hrs	9 hrs – none	Thinner No 3	13m²/ltr	
20°C	4 hrs	5 hrs – none			

Tiger Xtra

2.5ltr

Self polishing, erodible antifouling. Suitable to both power and sail boats and just 1 coat can last the season. Applying a second coat for year round protection gives excellent and consistent long term performance, under all conditions. It is suitable for use on all substrates except aluminium. Maximum launch time 3 months. HSE: 7514, HSE: (white) 7505.

5°C/41°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	8 hrs	9 hrs – none	Thinner No 3	13.5m²/ltr	
20°C	4 hrs	5 hrs – none			

Cruising Performer

750ml

2.5ltr

Self polishing, erodible antifouling with very latest eroding technology which reduces the build up of paint, maximizing cruising capability in all areas, whilst ensuring fouling is kept to a minimum. An excellent coverage rate and colour stability ensures **Cruising Performer** offers you the very best in value. Suitable for use on all substrates except aluminium. Maximum launch time 3 months. HSE: 7504

5°C/41°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	8 hrs	9 hrs – none	Thinner No 3	12.5m²/ltr	
20°C	4 hrs	5 hrs – none			

Broads

750ml

2.5ltr

Medium strength copper based antifouling specifically designed to reduce paint build up and give a good performance on fresh, salt and brackish waters. It is suitable for all substrates except aluminium. The maximum launch time is one month. HSE: 7345.

5°C/41°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	8 hrs	9 hrs – none	Thinner No 3	12.8m²/ltr	
20°C	4 hrs	5 hrs – none			

Hard Racing Boottop

Strong scrubabble antifouling for boottops which gives bright colours on the waterline. It is suitable for all substrates, including aluminium once suitably primed. Maximum launch time 3 months. HSE: 8636

375ml

5°C/41°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	8 hrs	9 hrs – none	Thinner No 3	13.8m²/ltr	
20°C	4 hrs	5 hrs – none			

Mille Drive

Aerosol. **Mille Drive** is a spray coat for the protection of propellers and outdrives.

500ml

5°C/41°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)
10°C	8 hrs	9 hrs – none
20°C	4 hrs	5 hrs – none

AluXtra

Selfpolishing Antifouling for propellers and stern gear, medium strength, suitable for most substrates including aluminium.
(Surfaces must be suitably primed)

375ml

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	8 hrs	9 hrs – none	808 (No 3)	13.8m²/ltr	
20°C	4 hrs	4 hrs – none			

What antifouling should I use?

Type of Boat	Type of Antifouling	Benefits	Products
Cruising motor and Sailing boats (max 25 knots)	**Self polishing / erodile**	Controlled release of active substances throughout the season	**Ocean Performer Tiger Xtra Cruising Performer**
		Works gradually throughout the season	
		Easy maintenance with minimum preparation time	
		Launch and re-launch without re-painting	
Fast going motor & sailing boats (*suitable for boats on dry berths during winter time)	**Hard**	solid & durable through whole season	**Glide Speed Hard Racing**
		more resistant to polishing and scrathing	
		needs to be abraded after the season	
Aluminium boats and propellors		special products for aluminium made boats	**AluXtra (after priming)**
Racing motor boats & regata sailing boats	**Hard**	for competition & regatas: increases speed, reduces fuel consumption extends motor life,ensures lower coating thickness	**Hard Racing Glide Speed (with TecCel)**

* For further information on type and benefits of antifoulings, refer to page 53.

Use antifouling products safely. Always read the label and product information before use.

Topcoats

Paint will enhance the appearance of any surface and offer protection against the elements. (Please see 'Choosing the right paint system' on page 16).

Brilliant Gloss

Brilliant Gloss is a high gloss alkyd topcoat with excellent colour retention. Flexible and resistant to salt water and pollutants. Easy application ensures an exceptional finish. For exterior and interior use above the waterline.

375ml*
750ml*
2.5ltr*
*Pure white only

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	8 hrs	20 hrs – 6 days	Thinner No 1	11 m²/ltr	
20°C	4 hrs	10 hrs – 3 days	Thinner No 3 (spray)		

Poly Gloss

A two component product. Use above the waterline on top of EPU as part of a two component system. For a high gloss finish that's extremely durable and resistant to UV degradation and abrasion. **Poly Gloss** is well known for its ease of application and its high performance properties. Add Anti-Slip granules for a non-slip finish.

750ml
2.5ltr

10°C/50°F Minimum application temperature — **Pot life at 20°C**: Mixed product: 6 hrs — **Mix ratio**: 2:1

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	6 - 8 hrs	36 hrs – 10 days	Thinner No 2	15m²/ltr	
20°C	3 - 4 hrs	16 hrs – 5 days	Thinner No 6 (spray)		

Ocean Gloss

Superyacht finish for smaller leisure boats.

Ocean Gloss is a fast drying, high gloss two component polyurethane topcoat with excellent gloss and colour retention. Highly durable and protects against degradation and abrasion. For use above the waterline. Especially suited for spray application.

750ml
2.5ltr

Only for professional use.

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	10-12 hrs	12 h - 14 d	8521 (No. 7)	15-17m²/ ltr	
20°C	3-4 hrs	6 h - 7 d	8531 (No. 8)		
			8511 (No. 6)		

MultiCoat

750ml

2.5ltr

A single component semi-gloss topcoat and primer. Ideal for all areas above the waterline requiring a semi-gloss durable topcoat. Can be applied directly to most surfaces. Provides excellent durability with good resistance to water and oil. Can also be used as a complete coating system on new or bare wood: 1st coat thinned 20%, 2nd coat thinned 5–10%, further coats undiluted. Add Anti-Slip granules for a non-slip finish.

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	3 - 4 hrs	16 hrs – 10 days	Thinner No 1	12m²/ltr	
20°C	6 - 8 hrs	8 hrs – 5 days	Thinner No 3 (spray)		

Non-Slip Deck Coating

750ml

Durable coating for deck areas - Contains fine granules for a non-slip finish. Easy to apply straight onto substrate. (Use suitable primer on previously uncoated surface)

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	4 hrs	6 hrs – 10 days	Thinner No 3	9.5 m²/ltr	
20°C	2 hrs	3 hrs – 5 days			

Bilge & Locker Paint

750ml

2.5ltr

A single component high opacity satin topcoat providing excellent durability, with good water and oil resistance for bilges and lockers. Not suitable for permanent immersion.

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	6 hrs	16 hrs – 10 days	Thinner No 1	12 m²/ltr	
20°C	3 hrs	8 hrs – 5 days	Thinner No 3 (spray)		

Anti-Slip Pearls

160 g

For areas such as decks, where you need an anti-slip finish, **MultiCoat**, **Brilliant** and **PolyGloss** – with the addition of **Anti-Slip Pearls** – will give an anti-slip surface that allows colour matching and co-ordinating with other glossed areas.

Recommended mix ratio
50g/750ml

Varnishes

Varnish will protect wood against the elements. And – where the wood is of good quality – enhance the natural beauty of the surface.

Wood Impreg

750ml

2.5ltr

Wood Impreg is a clear alkyd oil for use on wooden boats and hardwood. Excellent penetration properties allows the oil to saturate the wood before application of HEMPEL's varnishes and paints. For internal and external use above the waterline.

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	12 hrs		Thinner No 1	16m²/l	
20°C	6 hrs				

Favourite Varnish

375ml

750ml

2.5ltr

A single component alkyd based, full bodied, high gloss varnish.For use above the waterline, both inside and outside. Especially easy to use, giving a tough, durable, long-lasting finish, with depth of gloss. Ideal for areas where structural flexibility of the wood is needed.

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	12 hrs	12 hrs – 4 days	Thinner No 1	16m²/l	
20°C	6 hrs	6 hrs – 2 days			

Classic Varnish

375ml

750ml

2.5ltr

A single component traditional varnish produced from the highest quality materials, including tung oil. Use inside and outside above the waterline. Excellent flow at application, a flexible finish and long term UV filters ensure an uncompromising finish that will last for a long time.

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	20 hrs	20 hrs – 4 days	Thinner No 1	18m²/l	
20°C	10 hrs	10 hrs – 2 days			

Dura-Gloss Varnish/Dura-Satin Varnish

A single component, urethane modified alkyd with excellent resistance to alcohol and cleaning materials. For inside and outside areas above the waterline requiring a beautiful durable varnish. Quick-drying to an extremely hard and durable high gloss/satin surface, highly resistant to wear and abrasion within hours of application.

375ml

750ml

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	4–6 hrs	8 hrs – 4 days	Thinner No 1	17m²/l	
20°C	2–3 hrs	4 hrs – 2 days			

Diamond Varnish

A two component polyurethane varnish. Use inside and outside above the waterline. Use where a hard, extremely durable and long lasting finish is required. Highly resistant to abrasion and chemicals, for the ultimate finish in durability and beauty. For professional use only.

750ml

10°C/50°F Minimum application temperature — **Pot life at 20°C** Mixed product: 6hrs — **Mix ratio** 2:1

Temp	Touch dry	Re-coat (min/max)	Thinner/Tool clean	Covers	Tools
10°C	12 hrs	32 hrs – 10 days	Thinner No 2 (brush)	12m²/l	
20°C	6 hrs	16 hrs – 5 days	Thinner No 6 (spray)		

SeaTech Gloss Varnish/SeaTech Satin Varnish

A single component waterborne, acrylic varnish, offering a durable finish with high resistance to water and UV damage. For use above the waterline. Use on new and previously varnished wood, inside and out. Particularly good for use on interior areas as there is no solvent odour during application. Overcoating times and waterborne properties enable 2 to 3 coats to be applied in one day. Low VOC.

750ml

5°C/40°F Minimum application temperature

Temp	Touch dry	Re-coat (min/max)	Tool clean	Covers	Tools
10°C	2–4 hrs	4 hrs – 12 days	Water	12m²/l	
20°C	1–2 hrs	2 hrs – 6 days			

Teak treatment

Overtime teak's natural golden brown colour will gradually change to a silver-grey shade, then dull down to a dark grey/ greenish colour. Using Teak treatment products will refresh the look of the wood by cleaning, restoring the colour and protecting and maintaining the teak.

Teak Cleaner

A powder for cleaning all teak areas. Especially good for large areas such as decks, and for wood that's turned dark grey. Removes dirt and marks giving a clean surface ready for you to apply **Teak Colour Restorer** or **Teak Oil** to.

Wet the surface with fresh water and apply a uniform layer of **Teak Cleaner.** Leave on for 10 to 20 minutes, using a stiff brush to scrub while the paste is still moist. Thoroughly hose down with clean fresh water before the paste hardens.

750ml

Teak Oil

Unpigmented teak oil with good penetration to protect wood and make it easier to clean. Helps wood resist both water and dirt, and underlines its original structure. Use to overcoat **Teak Colour Restorer** on areas of high usage. Not suitable for use on painted or varnished surfaces.

Apply one saturation coat onto cleaned new wood, previously oiled or preserved wood. Let the **Teak Oil** soak into the wood, then remove surplus oil with a clean cloth.

5°C/40°F Minimum application temperature

750ml

Teak Colour Restorer

Pigmented teak oil with good penetration, giving teak surfaces a golden brown colour and a uniform finish. It can be used on teak decks and other wood surfaces exposed to hard wear and tear ONLY when overcoated with **Teak Oil**.

Apply one or more coats, depending on absorption of wood, onto cleaned new wood, previously oiled or preserved wood. Wipe off surplus with a clean cloth.

5°C/40°F Minimum application temperature

750ml

Thinners

It's important you only use the Thinners recommended for each application. Not doing so, or substituting other proprietary products, will result in an unsatisfactory finish.

Thinning paint can improve its flow characteristics, increase spreading rate and the ability to be absorbed – all making it easier to work with. However, exceeding the maximum recommended ratio of **Thinners** can adversely effect the product. When paint is thinned, the dry film thickness will be thinner when the solvents have evaporated and it may be necessary to apply another coat to obtain the required film thickness.

NOTE: With two pack products, only thin the mixed product.

Key Advice:

The solvents/thinners used in some paints can dissolve plastics. Make sure your painting tools can stand the kind of solvent being used, and be careful with any plastic containers you use.

Don't pour thinners into drainage systems – use facilities available for this.

Thinner 811 (No 1)
Thinner 871 (No 2)
Thinner 808 (No 3)
Thinner 845 (No 5)
Thinner 851 (No 6)
Thinner 852 (No 7)
Thinner 853 (No 8)

Boatcare

A boat will need maintaining during the season to ensure it keeps its good appearance and sailing capabilities and the coating system is maintained. How much maintenance and care is needed will depend on the environment in which the boat is sailed.

Pre-Clean

1 ltr

High strength cleaner and degreaser for pre-cleaning gelcoat and painted surfaces to remove fuel, oil, grease, wax and silicone. Use prior to painting and for deep cleaning.

Dilute 1 part **Pre-Clean** to 20 parts water for general cleaning, 1:10 for more demanding cleaning. Use to clean brushes covered in part cured paint. Do not use on bare or untreated wood which may absorb the water. **Minimum application temperature: 5°C/40°F.**

Boat Shampoo

1 ltr

Concentrated solvent-free cleaner for the efficient daily cleaning of gelcoat, painted and varnished surfaces, as well as boat covers, tarpaulins and vinyl surfaces.

Dilute 1 part **Boat Shampoo** with 10 parts fresh water. Apply with a soft brush or cloth. For high pressure cleaning dilute with water 1:5. Leave the agent to take effect for a few minutes, rinse with fresh water.
Minimum application temperature: 5°C/40°F.

Clean & Shine Spray

1 ltr

Easy-to-use concentrated wash and wax that effectively cleans, shines and leaves a protective coating in one application. For use on all surfaces. Unique hose connector makes it the quickest and easiest way to clean your boat.

Connect directly to standard hose and use applicator for full control and correct mixing ratio. Spray surface with water to loosen dirt, open blue valve to allow **Clean & Shine Spray** to mix with water, wipe with soft brush or sponge, wash off with fresh water.

Clean & Shine

Concentrated wash and wax that effectively cleans, shines and leaves a protective coating in one application. For use on all surfaces.

Dilute 1 part **Clean & Shine** with 10 parts fresh or sea water for heavy cleaning. Up to 50 parts for general cleaning. Apply with a sponge, soft brush or cloth, rinse with fresh water.
Minimum application temperature: 5°C/40°F

1 ltr

Gelcoat Cleaning Spray

Quick and easy-to-use foaming cleaner spray, for removing marks and stains over large areas. Use only on gelcoat and painted surfaces. Particularly good for cleaning deposits from the waterline. Chemical process avoids the need to rub or scrub the surface.

Spray foam onto surface and leave for 10 to 15 minutes, wash off with freshwater. Use **Cleaning Gel** for tough stubborn stains. **Minimum application temperature: 5°C/40°F**

comes with a trigger

500 ml

Gelcoat Cleaning Gel

High strength, non-abrasive cleaning gel for removing rust & exhaust stains, waterline deposits, fender and other marks over small/local areas. Use only on gelcoat and painted surfaces. Does not run when applied to vertical surfaces. Chemical process avoids the need to rub or scrub the surface.

Apply by brush, leave for 15 to 30 minutes, wash off with freshwater, brushing if necessary.
Minimum application temperature: 5°C/40°F

New name

500 ml

Gelcoat Cleaning Powder

Strong, fine abrasive cleaning powder for removing tough deposits, stains and yellowing. Use only on gelcoat surfaces. Removes hull discolouration from soil deposits in fresh or brackish water. Particularly suitable for cleaning large areas such as non-slip decks where dirt accumulates.

Mix **Gelcoat Cleaning Powder** with enough freshwater to make a paste. Apply evenly onto gelcoat which has been wetted with fresh water. Leave for 10-20 minutes. Use a soft brush to clean while paste is still moist.Thoroughly hose down with fresh water before the paste hardens.

New name

750 ml

Rubbing Liquid

Fine abrasive rubbing compound to remove oxidisation and light scratch marks from most surfaces, including aluminium. Restores and renews the gloss and colour to gelcoat and painted surfaces.

Apply with a soft cloth, rub by hand or with a polishing machine, wipe away any residue with a clean cloth.
Minimum application temperature:: 5°C/40°F.

500 ml

Wax[TecCel]

High performance liquid wax with TecCel technology, for a long lasting, deep gloss, tough protective finish on gelcoat, painted and varnished surfaces.

Apply with a soft cloth, polish by hand or with a polishing machine, allow to dry for 5–10 minutes, polish away any residue with a clean cloth leaving a high gloss mirror like finish.
Minimum application temperature: 5°C/40°F.

500 ml

Wax

Liquid wax for use on gelcoat, painted and varnished surfaces, leaving an extremely glossy UV protective finish.

Apply with a soft cloth, polish by hand or with a polishing machine, allow to dry for 5–10 minutes, polish then wipe away any residue with a clean cloth leaving a high gloss finish.
Minimum application temperature: 5°C/40°F.

500 ml

RIB Clean

Powerful, concentrated, solvent free cleaner and degreaser for RIB tubes and hulls, as well as other rubber and vinyl surfaces. Especially suited to remove dirt and UV light degradation. Can be used with high pressure cleaning equipment. Do not use on alkaline sensitive substrates such as aluminium. Dilute 1 part **RIB Clean** with 10 parts fresh water for general cleaning, reducing dilution for more demanding cleaning. After 5 minutes, wash/scrub the surface with freshwater until all residues have been removed.
Minimum application temperature: 5°C/40°F.

500 ml

Vinyl Shine

Easy-to-use liquid gel, to condition and leave a transparent, UV protective layer on vinyl and other rubber surfaces, keeping the material soft and flexible with a smooth, water resistant effect to the surface.

Apply with a soft cloth, working it into the surface, leaving a fine transparent UV protective film.
Minimum application temperature: 5°C/40°F.

500 ml

Alu-Protect 500ml

Silicone free oil for cleaning and protecting aluminium masts and booms, steel and stainless steel rigging and fittings. Penetrates into wire ropes and under fittings, ensuring long term protection.

Before sealing the surface with **Alu-Protect**, clean with **Pre-Clean**, rinse with fresh water and allow to dry. If there is heavy oxidation on the surface, use **Rubbing Liquid**, then wipe surface clean and apply **Alu-Protect** with a soft cloth, leaving a fine protective film. Do not apply in strong sunlight and on hot surfaces.

500 ml

Textile Clean

Concentrated cleaner and degreaser for boat covers, sprayhoods, tarpaulins and other cotton and nylon materials.

Dilute 1 part **Textile Clean** with 20 parts water, 1:10 for tougher stains. Apply with a brush or sponge, leave for 5 minutes and rinse with clean water. If a white residue is left on the surface, wash off with warm water. After drying, treat fabric with **Textile Protect**.
Minimum application temperature: 5°C/40°F

500 ml

Bilge Cleaner

A user-friendly product which dissolves and emulsifies oil and grease, removes dirt and cleans the bilge leaving a fresh citrus odour. It is also suitable for other areas where contaminants accumulate.

Turn off the bilge pump before cleaning. Pour **Bilge Cleaner** directly into the bilge. Scour using a brush, sponge or similar. Leave for several minutes or hours depending on dirt. Remove or pump out the dirty bilge water and dispose in an approved manner. Rinse the bilge area well with fresh water.

1 ltr

Mildew Remover

An easy-to-use product for the effective removal of mildew and stains without bleaching or discoloration. Does not destroy thread and canvas. Do not use on non-colour fast textiles. This product contains chloride - use Personal Protection Equipment.

Surface must be dry. **Mildew Remover** can be used undiluted for demanding cleaning or diluted up to 6 times for general cleaning. Test the **Mildew Remover** on a small area of the textile before use. Apply with a cloth, sponge or soft brush. Leave for 5 – 15 minutes. Scrub off with cloth, sponge or soft brush. If necessary, repeat the treatment. Rinse with fresh water.

1 ltr

Barnacle Remover

Effectively removes barnacles using a combination of chemical and mechanical treatments. For use on outdrives, propellers, bottom of boats and similar areas. Contains acid - use Personal Protection Equipment.

Scrape off any loose marine growth. Shake product well. Apply directly and evenly onto barnacle shells. Leave for 3 – 5 minutes. Apply more product (especially on vertical areas) at approximately 1 minute intervals to ensure that all shells are covered by the product and therefore being dissolved. Remove dissolved barnacles by using high pressure washing and/or gently scraping. If necessary, repeat the treatment. Rinse with fresh water.

500 ml

HEMPEL
Keep Sailing

Reference

- Calculating areas to be painted
- Overcoating information
- Health and safety
- Troubleshooting
- Technical terms
- Hempel stockists

Calculating areas to be painted

Abbreviations

LOA = Length Overall

LWL = Length Waterline

B = Beam

D = Draft

F = Freeboard

Conversions

1 foot = 0.305 metres
1 metre = 3.28 feet

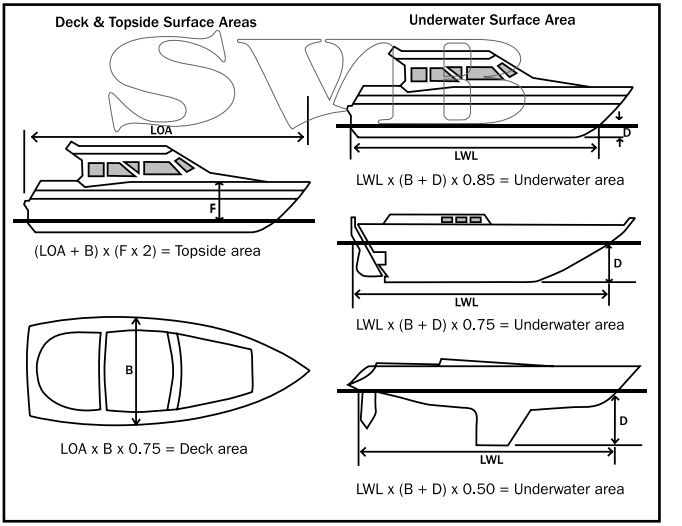
1 sq foot = 0.093 sq metres
1 sq metre = 10.763 sq feet

1 UK gallon = 4.546 litres
1 litre = 0.22 UK gallons

1 US gallon = 3.785 litres
1 litre = 0.264 US gallons

Litres required

$$\frac{\text{Total surface area}}{\text{Recommended coverage rate of relevant paint}}$$



Overcoating information

	Covers	Thickness	Touch dry	Re-coat (min/max)	Thinner
Favourite Varnish	16 m²/l	30 dft 60 wft	6hrs (20°C)	6hrs – 2 days (20°C)	No 1 (brush) No 1 (spray)
Classic Varnish	18 m²/l	30 dft 55 wft	10hrs (20°C)	8hrs – 2 days (20°C)	No 1 (brush) No 1 (spray)
Dura-Gloss or **Dura-Satin Varnish**	17 m²/l	25 dft 60 wft	2–3hrs (20°C)	4hrs – 2 days (20°C)	No 1 (brush) No 1 (spray)
Diamond Varnish	12 m²/l	40 dft 85 wft	6hrs (20°C)	16hrs – 5 days (20°C)	No 2 (brush) No 6 (spray)
SeaTech Gloss or **Satin Varnish**	12 m²/l	30 dft 100 wft	1–2hrs (20°C)	2hrs – 6 days (20°C)	Water
Primer Undercoat	12 m²/l	40 dft 100 wft	3hrs (20°C)	4hrs – 3 days (20°C)	No 1 (brush) No 1 (spray)
Underwater Primer	10 m²/l	40 dft 100 wft	2hrs (20°C)	3hrs – indefinite (20°C)	No 1 (brush) No 1 (spray)
Antifouling Primer	8.4 m²/l	50 dft 125 dft	1hr (20°C)	3hrs – none (20°C)	No 1 (brush) No 1 (spray)
Gel/High Protect	5 m²/l	350 dft 350 wft	10–12hrs (20°C)	8hrs – 5 days (20°C)	Don't thin
Light Primer	8.5 m²/l	60 dft 120 wft	4hrs (20°C)	4hrs – 30 days (20°C)	No 5 (brush) No 5 (spray)
Non-Slip Deck Coating	9.5 m²/l	50 dft 100 wft	1–2hrs (20°C)	3hrs – 5 days (20°C)	No 1 (brush) No 1 (spray)
MultiCoat	12 m²/l	40 dft 100 wft	3–4hrs (20°C)	8hrs – 5 days (20°C)	No 1 (brush) No 1 (spray)
Brilliant Gloss	11 m²/l	80 wft	4hrs (20°C)	10hrs – 3 days (20°C)	No 1 (brush) No 3 (spray)
Poly Gloss	15 m²/l	35 dft 75 wft	6hrs (20°C)	16hrs – 5 days (20°C)	No 2 (brush) No 6 (spray)
Ocean Gloss	15-17 m²/l	30 dft 100 wft	3-4hrs (20°C)	6hrs - 7 days (20°C)	No 6 (spray) No 7 (spray) No 8 (spray)
Antifoulings	(pg 36)	40 dft 75 wft	4hrs (20°C)	5hrs – indefinite (20°C)	No 3 (brush) No 3 (spray)

Health and Safety

By law, all paint products must display details of Health and Safety precautions. Here are the warning symbols most commonly found on our products, with a brief description.

Dangerous to the environment

May present an immediate or delayed danger to one or more components of the environment.

Harmful

May cause damage to health.

Irritant

May cause inflammation to skin or other mucous membranes.

Corrosive

May destroy living tissue on contact.

Highly flammable

May catch fire in contact with air, only needs brief contact with ignition source, has very low flash point or evolves highly flammable gases in contact with water.

Extremely flammable

Has an extremely low flash point and boiling point, and gases that catch fire in contact with air.

General good practice

- Refer to safety/product data sheets for product information and content.
- Always read the label thoroughly and contact us if you're not sure how to use the products.
- Wear the appropriate personal protective equipment (PPE).
- Provide adequate ventilation for the product used. If necessary, use a respirator. Don't breathe vapour/spray.
- Open cans with care.
- Immediately clean up spills.
- Do not eat or drink in the vicinity of stored or applied paint.
- Do not swallow. If swallowed, immediately seek medical advice and show the container/label.
- Some products may cause irritation, always seek medical advice if you're concerned.
- Where possible, removed antifouling paint should be collected and disposed of safely.
- Contact your local authority for information on waste disposal.

Troubleshooting

The most common causes of failures: poor surface preparation and cleaning; too smooth surface; moist surface; wood with high moisture content; insufficient priming; missed coating intervals.

Fault	Causes	What to do
Application marks	Wrong application tools. Temperature too hot, causing paint to cure too quickly and not allowing the product to flow naturally. Temperature too cold, making the product too thick and difficult to distribute evenly.	Abrade back to flat even surface and refinish, considering application tools and conditions.
Blistering – small swollen areas, surface may feel like sandpaper to touch	Surface contamination before paint application. Solvent entrapment due to paint being applied too thickly or overcoated too soon. Moisture entrapment during coating. Paint applied when humidity was too high.	Check for any other areas that may have a similar problem, abrade back all blisters, fill where necessary and recoat
Blushing – white milky appearance on film	High humidity can cause the thinners to evaporate too fast. Water condenses on the relatively cold surface and the subsequent moisture creates blushing.	Abrade back until blushing is cleared, and recoat considering the relative humidity and temperature.
Chalking – poor gloss, powdery surface	Prolonged exposure to Ultra Violet rays. Poorly mixed paint.	For a permanent cure, abrade back and recoat ensuring the paint is properly mixed.
Cracking/Crazing – appearance of shattered glass	Extreme temperature changes during paint. Incompatible overcoating. Paint applied too thickly or overcoated too soon.	Abrading back and repainting may cure this. However it's more likely the complete coating needs to be removed and an appropriate coating applied, in accordance with recommended specification.

Fault	Causes	What to do
Fish Eyes – small holes in the paint film	Appears during painting due to silicone or oil contamination on the surface.	Abrade back until contaminated area can be degreased, allow to dry and recoat.
Loss of gloss	High humidity, cold conditions and dew fall will cause the paint to cure with a low gloss level. Ultra Violet degradation over a period of time.	Abrade back and repaint.
Lifting or Peeling – paint lifting or peeling from surface	Poorly prepared surface. Incompatible overcoating. Moisture on the surface. High moisture level in wood. Overcoating times exceeded.	Remove loose paint, abrade, degrease and recoat in accordance with recommended specification.
Orange Peel – surface mottled like orange skin	Primarily occurs when spraying due to poor flow caused by poor atomisation, insufficient thinning, paint applied too thickly or overcoated too soon. Can also occur with some roller applications.	Abrade back to an even flat surface and recoat. If using a roller, it may be necessary to lay off using a brush or pad after roller application.
Runs – running of wet paint into uneven rivulets	Paint has been over thinned. Too much paint applied.	Abrade back to an even flat surface and recoat.
Sags – partial slippage of paint in thick areas like wide runs	Paint applied too thickly.	Abrade back to an even flat surface and recoat.
Wrinkling – surface resembles the skin of a prune	Paint applied too thickly causing solvent entrapment. Paint applied in direct sunlight causing the surface to dry too quickly resulting in solvent entrapment (uncured paint) under the surface.	If the paint hasn't hardened, remove with a scraper, clean surface with Degreaser or Thinners and recoat. On a cured surface, abrade to a flat even surface and recoat.

Technical terms

Alkyd
Synthetic binder soluble in white spirit.

Ambient temperature
Room temperature, or temperature of surroundings.

Amine Sweat
A layer of amine carbonate that can form on the surface of an epoxy after application, usually caused by high humidity. Must be removed prior to over-coating.

Antifouling
Paint formulated to discourage marine organisms from settling on the hull surface.

Biocide
Active ingredient added to a coating to repel/discourage unwanted organisms responsible for microbiological degradation.

Burnish
The act of rubbing a paint film to produce a smooth polished finish.

Compatibility
Ability of two or more materials to be mixed together without causing undesirable effects.

Corrosion
Process of deterioration by chemical, electrochemical or microbiological reactions resulting from exposure to the environment.

Cure
The conversion of paint from a liquid to a solid.

Density
Ratio of weight to volume.

Drying
The process by which a film passes from liquid to a solid state.

Epoxy
Synthetic resin containing epoxy groups.

Fairing
To produce a smooth outline, improve appearance and reduce drag.

Flow
Property of a coating material that enables levelling.

Gelcoat
Outermost pigmented polyester layer on fibreglass structures.

Gloss
Optical property of a surface, characterised by its ability to reflect light specularly.

Key
Quality of the surface or previous coating which assists adhesion of a subsequent coat, ie a rough or abraded surface provides a mechanical grip for the applied film.

Levelling
Ability of a coating material to flow-out after application, minimising any surface irregularities caused by the application process.

Micron
Metric unit used to designate film thickness. 1/1000 millimetre.

Opacity
Ability of a coating to obliterate the colour or the difference in colour of a substrate.

Polyester
Synthetic resin used for the manufacture and maintenance of fibreglass structures.

Polyurethane
A durable synthetic resin used in single or 2 pack topcoats.

Pot Life
The useful life of a 2 pack product immediately after it has been mixed.

Primer
Paint applied to a non painted or prepared substrate to give protection, and/or in readiness for subsequent coatings.

Sag/Sagging
The downward flow of paint as a result of being applied too thickly.

Solvent
A liquid used to dissolve or disperse paint and other oils.

Solvent entrapment
Solvent trapped in an apparently dried paint film making it soft and vulnerable.

Substrate
Surface to be coated.

Thinner (Solvent, Diluant, Reducer)
A liquid used to adjust the viscosity and drying time of a paint.

Tiecoat
A coating with good adhesion and low reaction used to improve inter-coat adhesion.

Topcoat
The final paint applied in a coating specification.

Ultra Violet (UV)
Light energy that can break chemical bonds leading to wear and fading of paint films.

Undercoat
Paint applied prior to a topcoat to give a consistent colour and surface profile.

Urethane
Synthetic binder in an alkyd structure providing a durable topcoat.

Viscosity
A product's thickness or ability to resist flow.

Water-borne
A paint that uses water as a solvent or thinner.

COLOUR CARD

MULTICOAT / BILGE & LOCKER PAINT / NON SLIP DECK COATING

MultiCoat (MC): Semi gloss topcoat and primer providing good resistance to sunlight, water and oil. Can also be used as an undercoat and primer for Bilge & Locker, Brilliant Gloss, Deck Coating and MultiCoat.

Bilge & Locker (B&L): Semi-gloss finish - topcoat providing excellent durability with good water and oil resistance.

Non Slip Deck Coating (DC): Durable semi gloss intermediate and finishing coat for deck areas.

10000 White
MC/B&L/DC

11480 Mid Grey
MC/B&L/DC

19500 Light Grey
MC/ B&L/DC

19990 Black
MC

22210 Pale Cream
MC/DC

30100 Navy Blue
MC/DC

33390 Light Blue
MC

47340 Pastel Green
MC

50800 Pillarbox Red
MC

BRILLIANT GLOSS

Brilliant Gloss: High gloss alkyd silicone top coat. Excellent colour retention, easy application with an exceptionally good finish.

10121 Matterhorn White

10141 Town Grey

10231 Pure White

10381 Off White

10501 Polar White

12011 Pale Grey

12221 Smoke Grey

19990 Black

21401 Cream

31810 Britannia Blue

32800 Souvenirs Blue

34161 Colbalt Blue

35141 Flag Blue

38140 Ice Blue

46121 Marine Green

50190 Survival Orange

53121 Bordeaux Red

54121 Radiant Red

OCEAN GLOSS

Hempel's premium gloss: Spray applied 2-pack polyurethane giving an outstanding finish for leisure boats.

10121 Matterhorn White

10231 Pure White

10381 Off White

10501 Polar White

12221 Smoke Grey

19990 Black

21401 Cream

34161 Cobalt Blue

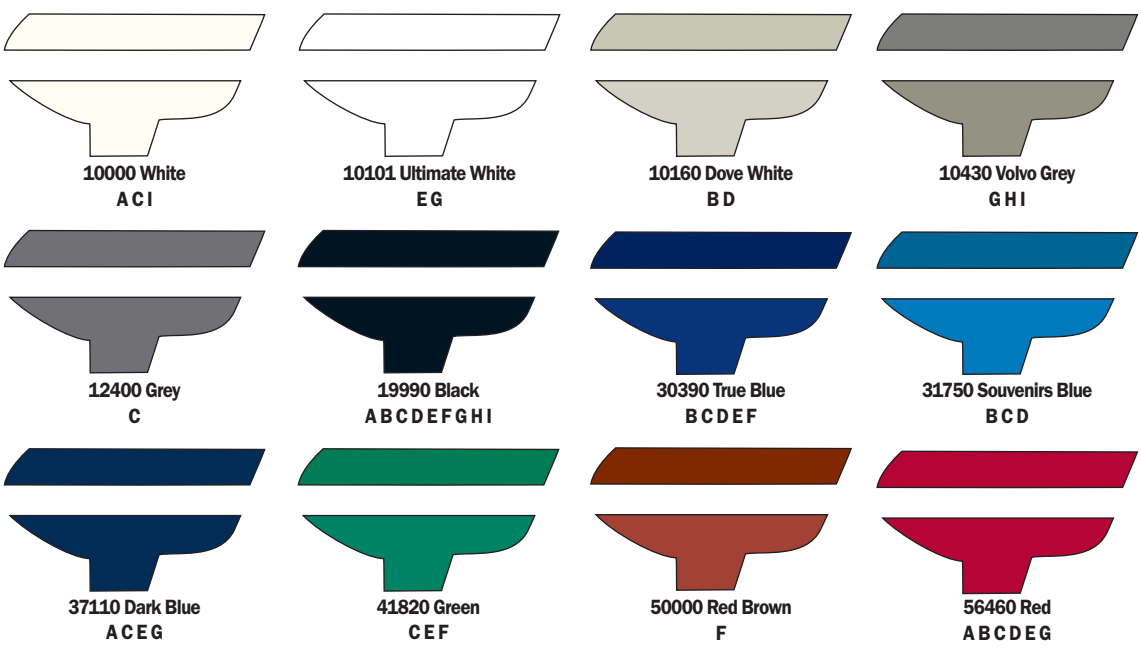
35141 Flag Blue

46121 Marine Green

53121 Bordeaux Red

54121 Radiant Red

ANTIFOULINGS



A - GLIDE SPEED
B - OCEAN PERFORMER
C - TIGER XTRA
D - CRUISING PERFORMER
E - HARD RACING
F - BROADS
G - HARD RACING BOOTTOP
H - MILLE DRIVE
I - ALUXTRA

Above waterline

Below waterline

Warning: Although care is taken to match colours as accurately as possible, the printing process does not allow exact colour and gloss level reproduction. We recommend you check for accuracy before applying.

For the full range of Primers/Undercoats for Single and Two Pack products please refer to Hempel's Paint Manual.

Hempel UK Ltd · Llantarnam Park · Cwmbran · NP44 3XF · Tel: 01633 833600 · Email: sales.uk@hempel.com

www.hempel.co.uk