

InterProtect®

For prevention and repair of gelcoat blistering

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InterProtect as a multi-use primer

The **InterProtect®** products were introduced in 1985 for the repair and prevention of gelcoat blisters and quickly became the product of choice for professionals and do-it yourselfers alike. In the ensuing years it has become the standard by which everything else is measured. A study undertaken in 2001 reported that boats with **InterProtect System** on the bottom had a higher resale value than boats that did not.

InterProtect has proven itself to be a universal primer. Below the waterline it can be used for corrosion protection on all underwater metals for hulls, keels, trim tabs and running gear as well as for blister protection and as part of the **Ultimate No Sand System** for new fiberglass boats. Above the waterline **InterProtect** is used on fiberglass and all metals.

The InterProtect System was designed to repair hulls which have experienced gelcoat blistering. However, the best time to attack hull blistering is before it happens. Taking preventative action before a problem occurs greatly reduces the likelihood of an expensive repair and has been shown to increase resale value of your boat. If you're buying a new boat, protect your investment with the **InterProtect System** before it ever goes into the water!



InterProtect is a universal primer for use above and below the waterline.

- Repair and protection of gelcoat blistering
- Use InterProtect as a primer over no-skid decks
- Primer for cracked and crazed gelcoat
- Use with Interfill® 830 or Watertite for complete fairing system
- Use over Epiglass® Epoxy Resin and all clear epoxy resins
- Use as part of the 'Ultimate' No Sand System for new or never been painted fiberglass boats
- Oil & water resistant bilge coating
- Anticorrosive primer for bare metal

Epoxy technology

Epoxy technology has become the mainstay for primers, undercoaters, fillers and glues in the marine marketplace but there are three main choices of materials to use for blister repair and protection; polyester, vinylester and epoxy. Polyester is the least expensive, easy to use and cures quickly but it suffers from osmotic attack, it is physically weak and brittle and has poor adhesive qualities. Vinylester has better strength and moisture resistance than polyester, familiar processing (like polyester), cures quickly and is of moderate cost but is still physically weak and brittle, has only modest adhesive properties and according to some manufacturers, full water resistant properties will only be achieved with a heated post-cure. Epoxies have a higher cost and slower cure than polyester or vinylester but they have much higher strength & toughness, excellent adhesion, a 'fixed' cure system with no un-reacted components or additives and most importantly epoxies are not attacked by water.

This manual covers many of the uses for InterProtect but for complete systems call 1 800 468 7589 or go to www.yachtpaint.com

The InterProtect System is the most widely used blister prevention and repair system in the marine industry for good reason – it has been tested by an independent marine lab and shown to be the best system for reducing water absorption in fiberglass.

The InterProtect epoxies have been specifically designed to not only reduce water absorption but are fast drying which enables quick turnaround in boatyards. This allows an applicator to apply a complete protective coating and antifouling paint in 2-3 days, but also with long maximum times between coats to allow for flexibility in scheduling.

InterProtect also has a natural structure within the epoxy coating

to create a barrier against water permeation called Micro-Plates®. Technically, the InterProtect Micro-Plates formula provides millions of overlapping microscopic plates. When bound in the epoxy coatings, they create an overlapping barrier similar to shingles on a roof. Enlarged 900 times in this electron microscope photo, the overlapping Micro-Plates clearly eliminate any direct path for water migration. (Photo #2)

Electron Microscope Photos

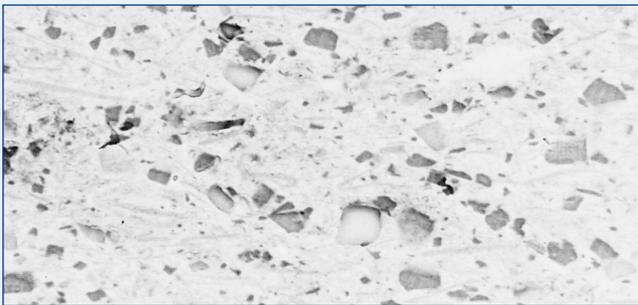


Photo #1

Traditional two-part epoxy coatings were adaptations of products designed for other applications which were not specifically developed to resist water permeation. This electron microscope photograph of a conventional epoxy coating enlarged 900 times shows the pigment randomly dispersed, creating no uniform barrier to water permeation. Water can find almost a direct path through and around these randomly dispersed particles.

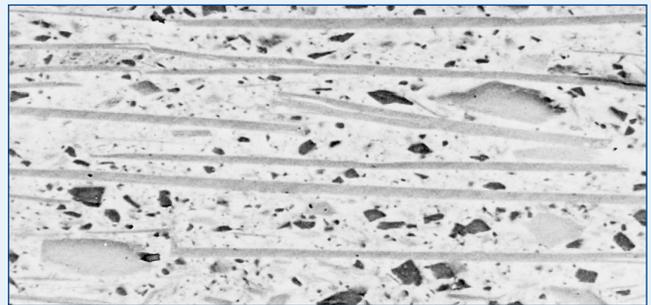


Photo #2

Magnified 900 times, the Micro-Plate effect of InterProtect is demonstrated in this electron microscope photo. The overlapping Micro-Plates create a material barrier against water migration yet provide a smooth, hard epoxy finish.

Causes of blistering

The gelcoat on fiberglass hulls was once believed to be an almost indestructible surface and impervious to water. However, field experience and extensive testing have proven water will pass through the gelcoat and reach the laminate layer at some point during the hull's lifetime, which can cause changes in the physical makeup of the hull. Osmotic damage in fiberglass boats is defined as the hydrolytic breakdown of the resin matrix caused by the presence of water in the laminate and is characterized by the formation of liquid filled blisters and eventual structural failure of the laminate.

Osmosis and hull blistering

The water gets into the laminate in the form of water vapor. Water vapor will penetrate ALL polymeric materials. The penetration rate varies but is generally quite fast. Once water permeates the gelcoat and reaches the laminate layers it forms concentration cells in the voids and draws in additional moisture. It then begins to break down the resin in the laminate by hydrolyzing the polyester back to its constituents despite the cross-linking of the resin.

This creates more solutes and draws more water into the cell. The liquid solution behind the gelcoat seeks to reach equilibrium with the water on the outer skin of the gelcoat. During the attempted equilibrium process, pressure increases and is responsible for distension of the gelcoat. It is difficult to determine how much water a fiberglass hull laminate must absorb to cause gelcoat blistering. On some hulls the gelcoats were very thick and did not blister, instead they cracked but whether blistered or cracked the hulls were still absorbing water. Not only does the water vapor pass through the gelcoat from the exterior, but exposed interior laminate in the bilge can absorb water, too.

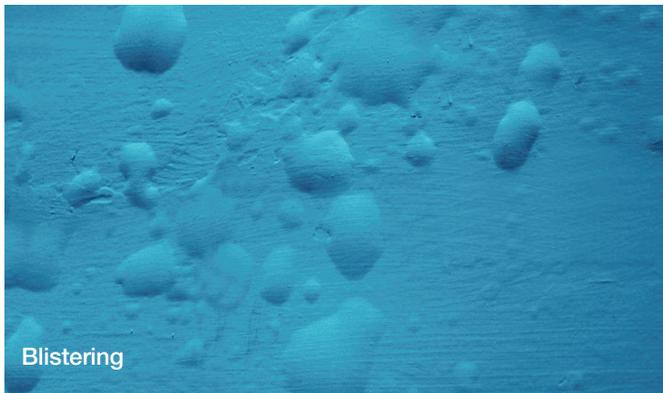
It is reasonable to assume that keeping water from the gelcoat and laminate is an effective method of preventing water absorption and will reduce the potential of gelcoat blistering. This penetration or absorption process can take days, months or years. Regardless, the hull steadily gains weight, loses efficiency through the water, suffers increased fuel consumption and can result in hull blisters.

The importance of properly drying the hull

The importance of having a moisture-free hull cannot be over-emphasized. The drier the laminate, the lighter the hull, the better the performance, better fuel efficiency and longer gelcoat life. Thorough drying of the laminate is vital for successful treatment, but often this is where mistakes and compromises are made. If **InterProtect** is applied over a wet hull, it will trap moisture in the laminate and blistering will continue. Allow the hull to completely 'dry' (a saturated hull may require several months to dry or even require force drying). Atmospheric conditions and boat age will affect drying time.

To begin the drying process, remove all antifouling paint. If any blisters are present open them and grind to solid laminate. Scrub and rinse these areas with fresh water. Be sure bilges are dry as water may penetrate the laminate from the inside. In areas where boats are stored out of water during the off-season, complete the surface preparation when the boat is hauled and apply the **InterProtect System** prior to spring launch. In this way, the hull will have a long drying cycle. Only when you are convinced of dryness, proceed with application.

The recurrence of gelcoat blistering cannot be completely assured, although longer drying times decrease the possibility of future blistering.



Water and Glycol

In addition to water, glycol is a commonly found liquid in blistered hulls, which must be removed. Glycol is used in the manufacture of polyester resin, which explains its presence in the hull. Water evaporates readily; glycol does not and must be removed physically from the hull. Glycols are hygroscopic, which means they are attracted to water, therefore, it follows that water can be used to remove them. Pressure washing the laminate with fresh water, preferably hot, on a regular basis, will wash off the glycol, and the underlying glycol will migrate towards the surface.

If this treatment is carried out 1-2 times a week for 3-4 weeks, all glycol and other contaminants should be removed, and the hull will then dry quickly in natural conditions.

Testing for hull dryness

There are many methods of testing for hull dryness; the most common is to use a moisture meter. Much care and technique must be employed in using a moisture meter, as there are many factors in using moisture meters correctly. Antifouling paint should be removed, as the paint may provide a false reading on the meter. The best method of using a moisture meter is to test several places on the hull both above and below the waterline. Below the waterline take measurements every two to three feet on the hull and mark the spots on the boat where you take readings and write in the date and the moisture reading. Measure those areas again every couple of weeks and mark down the new date and the new reading. Even if the boat is not blistered it is a good practice to have a competent marine surveyor or applicator take readings with a moisture meter before applying the **InterProtect System**.

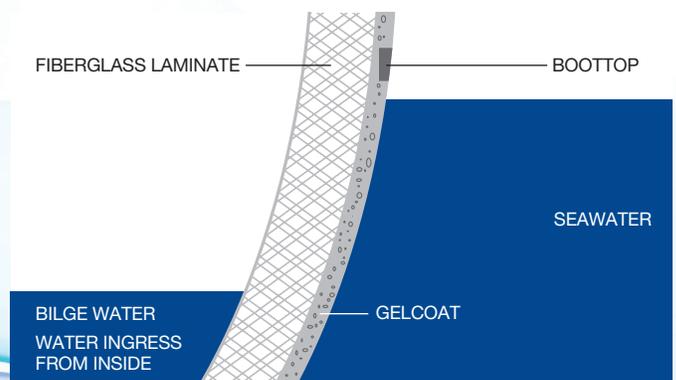
Note: Please consult the owners manual of the moisture meter to determine dryness of the hull.

Blasting and peeling

The most common methods of preparing hulls for osmosis treatment are blasting and peeling. Blasting will remove weak areas of laminate, which produces a very uneven surface. An uneven surface will have a much greater profile than a smooth surface and greatly helps the drying process, and helps to ensure good adhesion of paint coatings. Peeling produces a much smoother surface that will take less time to fair but will take longer to dry. If the hull is peeled the surface should be lightly blasted or ground using 36-grit discs.

Complete removal of gelcoat should be undertaken only under the advice of a competent yacht surveyor. Blasting or peeling should only be done by personnel who are experienced in working with fiberglass.

Schematic of fiberglass construction



Choosing the right InterProtect system

InterProtect 2000E was developed to be easy to apply without sagging or running. The quick overcoat times of **InterProtect 2000E** allow the entire system, 10 mils of epoxy and the first coat of antifouling, to be applied in two days. Antifouling paint can be applied without additional surface preparation. (Be sure to follow label directions). It is available in 2 colors and also in a VOC compliant version.

InterProtect HS is a versatile high solids two part epoxy that can be used above and below the waterline as a high build primer. **InterProtect HS** is used as part of a gelcoat blister repair or prevention system. **InterProtect HS** uses Micro-Plate® Technology to substantially reduce water migration through the epoxy to the hull surface, to

prevent osmotic blistering. Micro-Plates also provide protection from corrosion for metals. **InterProtect HS** is a high solids epoxy which means fewer coats to reach the desired film thickness. **InterProtect HS** also meets the most restrictive VOC regulations and helps reduce solvent emissions into the environment.

Regardless of which **InterProtect System** you choose, you are getting the industry standard of gelcoat repair systems.

The chart below compares the product characteristics of both **InterProtect 2000E** and **InterProtect HS**. You decide which product best suits your application procedures, drying times, VOC restrictions, etc.

	InterProtect 2000E	InterProtect HS
Color	Gray 2000E & White 2002E	Gray
Application Methods	Roll, brush or spray	Airless spray, brush and roll
VOC	464 grams per liter	289 grams per liter
Volume Solids	45%	66%
Application Temperature	40-95°F (5-35°C)	41-95°F (5-35°C)
Theoretical Coverage	240 sq ft/gal/coat brush or roll applied	151 sq ft/gal to reach a DFT of 7 mils
Mixing Ratio	3:1	2:1
Solvent	Interlux 2316N or Interlux 2333N	Interlux 2316N
Clean-Up	Interlux 2316N	Interlux 2316N
Pot Life	5 hours	2.5 hours
Substrate Temp °F (°C)	Overcoat times with self	
	Minimum	Maximum
41 (5)	10 hours	6 months
50 (10)	5 hours	6 months
73 (23)	3 hours	6 months
90 (32)	2 hours	6 months
Substrate Temp °F (°C)	Overcoat times antifouling paint	
	Minimum	Maximum
50-60 (10-15)	5 hours	9 hours
60-80 (15-27)	3 hours	7 hours
80-90 (27-32)	1 hours	5 hours
	Refer to the InterProtect HS Datasheet for information on applying antifouling paint to InterProtect HS	
	** 14 days maximum between coats of InterProtect HS. For non-immersed areas the maximum time between coats is 3 months.	

Use this chart as a guide. For best results use the "Thumb Print" method to determine when **InterProtect 2000E** is ready to overcoat. It usually takes 4-5 coats to apply the proper amount of **InterProtect 2000E**, but the amount of paint applied is more important than the number of coats. See page 8 for how to calculate the proper amount of paint.

Typical work schedule for application of InterProtect 2000E at 70°F (21°C)

Day One	Day Two*	
8 AM: Give boat final sanding and wipe down 9 AM: Apply first coat of InterProtect 2000E 12 Noon: Apply second coat of InterProtect 2000E 3 PM: Apply third coat of InterProtect 2000E	8 AM: Apply fourth coat of InterProtect 2000E 11 AM: Apply fifth coat of InterProtect 2000E (if necessary) 4 PM: Apply first coat of Interlux Antifouling Paint	* Up to 6 months is allowed between coats of InterProtect 2000E .

How much InterProtect is needed?

Once the hull is dry, applying the proper film thickness of **InterProtect** is critical in keeping hull laminate dry. The following is designed to help estimate the amount of material required for a specific hull. Proper film thickness will improve the performance of the **InterProtect System**.

Calculating wetted surface area

Boat size & type	Estimated surface area sq ft	InterProtect 2000E 4-5 coats total Brush applied	InterProtect HS Brush applied 3 coats minimum Airless spray 1 coat at 7 mils dft	Epiglass® HT9000 if required Brush applied
18' Power & Sail	120	2	1	3
21' Power & Sail	150	2	1	4
28' Power & Sail	240	4	2	5
31' Sailboat	270	4	2	6
32' Sportfisherman	300	5	2	7
36' Cruising Sailboat	330	5	3	8
36' Powerboat	350	6	3	8
41' Cruising Sailboat	435	7	3	10
42' Powerboat	500	8	4	11
53' Cruising Sailboat	590	10	4	13
53' Powerboat	650	11-12	5	15

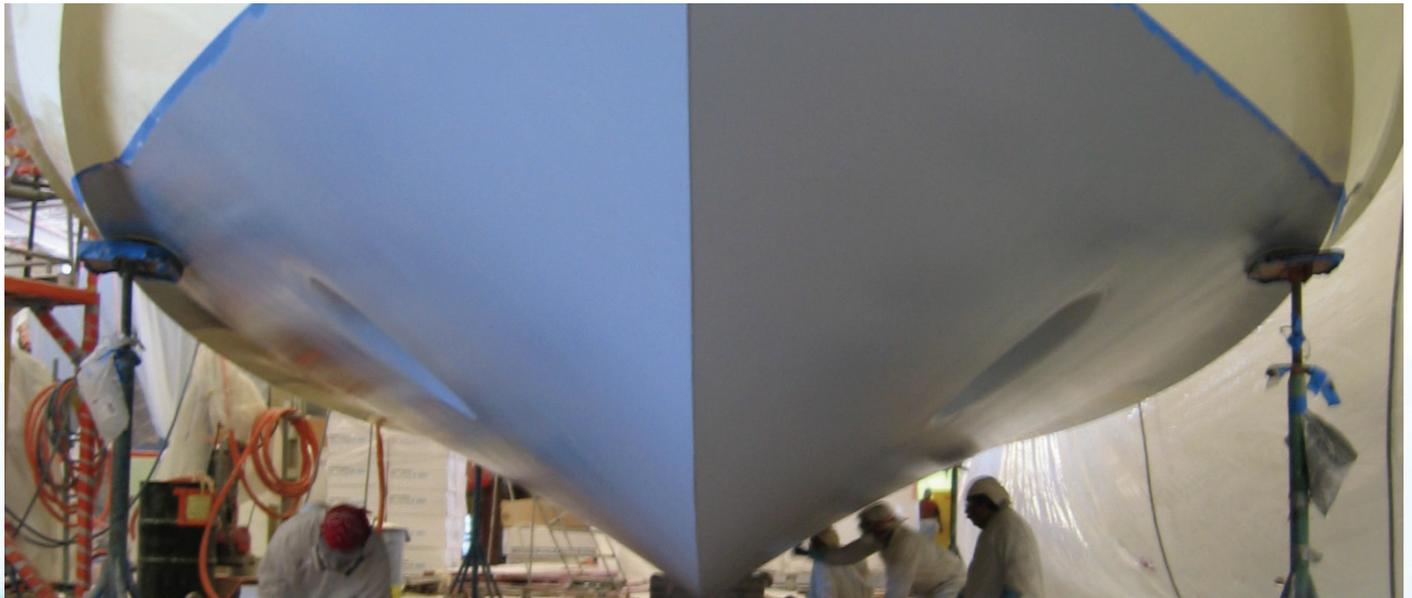
Wetted surface areas and product volume requirements for boats listed above are approximate and are supplied as reference only.

It is best to actually measure the wetted surface area of the hull. If this is difficult to do, a close approximation can be made by multiplying the length overall, times the beam, times 85%. (L.O.A. x Beam x .85 = wetted surface area.). Dividing the wetted surface area by the expected coverage will give you the number of gallons needed to get to the proper film thickness.

All quantities should be rounded up because a thicker coating provides greater protection against water penetration.

- Average expected coverage of **Epiglass HT9000** is approximately 175 sq ft per gallon kit but surface condition will greatly affect coverage. Apply enough **Epiglass HT9000** to seal all bare laminate.
- Average expected coverage of **InterProtect 2000E** is 60 sq. ft. per gallon kit when brushing or rolling and 45 sq ft per gallon kit when spraying to achieve 10 mils of dry finished coating.
- Average expected coverage of **InterProtect HS** is 151 sq. ft. per gallon kit to achieve 7 mils of dry finished coating.

Note: **InterProtect 2000E** is available in two colors, gray and white, so an optional method of application is to alternate the color for each coat, for example, when applying **InterProtect 2000E** to a white hull start with **InterProtect** gray, then use white for the second coat and so on. Continue to alternate the colors through all of the coats to reach 10 mils. This will help ensure complete coverage and make it easier to apply the correct amount of paint. Take this in to account when determining how much **InterProtect 2000E** will be needed.



Relaminating with Epiglass® and fiberglass cloth

If the boat has been severely blistered it may be necessary to have the bottom peeled or sandblasted. If that is the case the bottom will need to be built up with resin and cloth.

1. Sand or plane out bumps and any ridges left by the peeling process. If the hull has large hollows, fill them after sanding and cleaning.
2. Wash and let dry.
3. Apply a coat of **Epiglass Resin** to the entire hull.
4. Wet out cloth for laminating and apply it to the hull when the **Epiglass** coating is tacky. Squeegee or use a rubber roller to eliminate voids. If needed, cut cloth to fit the area being covered.
5. If a second laminate is required, apply it when the first laminate is at the tacky stage.

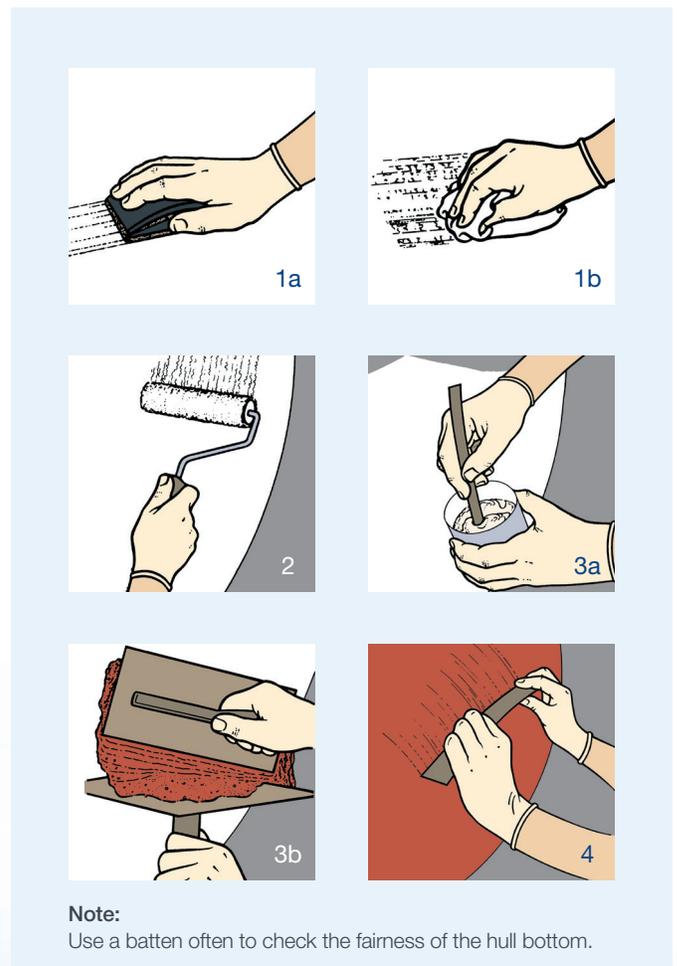
6. Apply **Peel Ply** to the hull to get a patterned finish and to reduce voids, or when the laminate is cured to the tacky stage apply a sanding coat of **Epiglass** and allow it to dry thoroughly. Let dry for at least a week before sanding.
7. Sand the bottom with 80-grit sandpaper and remove sanding residue by wiping with a cloth that has been dampened with **Fiberglass Solvent Wash 202**. If the hull is fair, apply the water barrier of **InterProtect 2000E** or **InterProtect HS** and apply antifouling paint.



Fairing the bottom

After grinding out blisters it will probably be necessary to fair the hull to return the hull to its original shape.

1. Sand the bottom with 80-grit sandpaper and remove sanding residue by wiping with a cloth that has been dampened with **Fiberglass Solvent Wash 202**.
2. Apply one coat of **Epiglass Resin**.
3. Spread a mix of either **Interfill® 830** or **Watertite Epoxy Filler** into the hollow area and use a batten to get it smooth and fair.
4. Put a long batten (about 6 feet long), made from a piece of 3/8 or 3/4 inch (10 to 20 mm) plastic pipe along the bottom of the hull. Use thinner pipe or batten transversely across the hull and thicker pipe or batten longitudinally. Mark any hollows on the hull.
5. When it is set up, sand the area back using a 'longboard.' A long board is a sanding board that is at least 4' (just over 1 meter) long and up to 10' (about 3 meters long) depending on the size of the boat, and three to six inches (75 to 150 mm) wide. A long board can be easily made in the yard as required. Use this board with 80 to 100-grit sandpaper working in a fore and aft direction to get the hull bottom smooth.
6. Keep going back over the hull until all the hollows are filled and faired as described above.
7. Apply a coat of **Epiglass Resin** over the entire bottom. Allow it to cure and apply water barrier of **InterProtect 2000E** or **InterProtect HS**.



Go to yachtpaint.com for more information on using Epiglass Epoxy Resin for relaminating, filling and fairing.

Applying InterProtect 2000 for prevention and protection

New or Non-Blistered Hulls

Surface Preparation

To prevent delamination, all mold release wax and other contamination must be removed prior to the application of **InterProtect Epoxies**. If the boat has already been painted, remove all antifouling paint with **Interstrip 299E** (follow directions on label).

There are two methods of cleaning the hull:

Either...

Preferred:

1. Scrub well using **Fiberglass Surface Prep YMA601V** and a maroon nylon scrub pad. Flush well with fresh water and allow surface to dry. (Refer to page 11 for step by step instructions)

or...

Alternative:

2. Wipe a small area with a clean rag that has been wetted with **Interlux® Fiberglass Solvent Wash 202**. Before the **Fiberglass Solvent Wash 202** dries wipe with a clean dry rag. Change rags frequently. Repeat wiping with **Fiberglass Solvent Wash 202** until surface is clean.

Next run water over the surface to determine if it is clean. If the water separates or beads up you need to repeat the process. Do not sand the surface before cleaning. Sanding grinds contamination into the surface making it harder to remove. Once the surface is clean, sand the gelcoat thoroughly using 80-grit sandpaper and remove sanding residue by wiping with a cloth dampened with **Fiberglass Solvent Wash 202**.



Overcoating times of InterProtect 2000E

Substrate Temperature	Time between coats of InterProtect 2000E		Hours between last coat of InterProtect 2000E & antifouling paint*	
	°F (°C)	Minimum	Maximum	Minimum
41 (5)	10 hours	6 months	10 hours**	24 hours**
50 (10)	5 hours	6 months	5 hours	9 hours
73 (23)	3 hours	6 months	3 hours	7 hours
95 (35)	2 hours	6 months	1 hours	5 hours

* Overcoating times will vary due to wide variations in temperature and humidity. The best method to determine when the InterProtect 2000E is Ready-to-Overcoat with antifouling paint is to check the paint film using the 'Thumb Print' test. If the primer feels tacky and you can leave a thumb print in the paint film without getting any paint on your thumb the InterProtect 2000E is ready for overcoating. Test the paint film 1 hour after starting the application. Continue testing every 15 minutes using the 'Thumb Print' test until reaching the Ready-to-Overcoat stage. Immediately, begin to apply the Interlux® antifouling paint once the primer has reached the Ready-to-Overcoat stage. Do not use the 'Thumb Print' test when applying VC® Offshore, Baltoplate, VC17m Extra, VC17m or any vinyl antifouling over InterProtect. Allow the InterProtect to cure for a minimum of 24 hours and then sand with 80-grit sandpaper.

** Only Micron® 66, Micron® CF, Pacifica® Plus, Trilux® 33, VC® 17m Extra and VC® 17m may be applied at temperatures below 50°F.

Applying InterProtect 2000E to new or non-blistered hulls

1. Clean and sand the surface following the instructions above.
2. Mix three parts of 2000E Gray Base or 2002E White Base with one part 2001E Reactor, and allow it to stand mixed for a minimum of twenty minutes for induction time. Mix only what can be used in five hours.
3. Apply coats of InterProtect 2000E as per chart to the right. Apply InterProtect 2000E to build a total of 10 mils (0.010 inch) dry film thickness. It usually takes four to five coats to apply the proper amount of InterProtect 2000E, but the final dry film thickness is more important than the number of coats.

For prevention and repair of gelcoat blistering

- Universal primer for above and below the waterline
- Excellent for use on underwater metals, hulls and keels
- Easy to apply – dries quickly – no sanding
- Long overcoat windows – Up to 6 months between coats of InterProtect 2000E
- Use as part of a no sand system
- Available in two colors, Gray and White, so you can alternate colors to ensure full coverage

The most trusted and used barrier and primer system

Applying InterProtect HS for prevention and protection

Applying InterProtect HS to new or non-blistered hulls

1. Clean and sand the surface following the instructions above. (Please refer to page 8)
2. Mix two parts of **InterProtect HS Base** with one part of **InterProtect HS Reactor**. Mix only enough epoxy for one coat.
3. Apply coats of **InterProtect HS** as per the chart to the right. Apply enough **InterProtect HS** to build a total of 7 mils (.0007 inch) dry film thickness. When applied by roller, a minimum of 3 coats are required. The final dry film thickness is more important than the number of coats.
4. Apply antifouling paint. The “Thumb Print” test cannot be used to determine when **InterProtect HS** is ready to overcoat. Refer to the **InterProtect HS** Datasheet for information on applying antifouling paint to **InterProtect HS**.



Overcoating times of InterProtect HS

Substrate Temp °F (°C)	Touch Dry	Hard Dry	Pot Life	Overcoating interval between coats of InterProtect HS	
	Hours	Hours	Hours	Minimum	Maximum
41 (5)	7	16	2.5	7 hours	** 14 days
60 (15)	4.5	8	2	5 hours	** 14 days
73 (23)	3	6	1	3 hours	** 14 days
95 (35)	1.75	3	50 Minutes	2 hours	** 14 days

* The “Thumb Print” test cannot be used to determine when **InterProtect HS** is ready to overcoat. Refer to the **InterProtect HS** Product Datasheet for more information on applying antifouling paint to **InterProtect HS**.

** 14 days maximum between coats of InterProtect HS. For non-immersed areas the maximum time between coats is 3 months.

Tests show that when rolling InterProtect HS, best results are achieved with a **Linzer Pro Edge Microfiber Roller Cover** with 1/4” or 3/8” nap.

Applying InterProtect for repair and prevention

Blistered Hulls

Surface Prep

1. Remove all antifouling paint with **Interlux Interstrip 299E** and clean surface as above.
2. Sand the entire bottom with 80-grit production sandpaper.
3. Remove the sanding residue by wiping with **Interlux Fiberglass Solvent Wash 202** on a damp cloth.
4. Open all blisters and remove any bad gelcoat and laminate. Open all blistered areas either by physical grinding or by sandblasting or peeling. On severely blistered boats the entire gelcoat below the waterline may need to be removed. Complete removal of the gelcoat should be done only after the advice of a competent Marine Surveyor. If the gelcoat has been peeled off lightly sandblast or sand with 60-80 grit sandpaper to remove any soft spots in the laminate and to provide more surface area to aid in drying the hull. It also makes a better surface for the **Epiglass® Epoxy Resin** to adhere to.
5. Wash the entire underwater surface with fresh water (preferably hot water) in order to remove glycol and other water-soluble contaminants. Repeat periodically during the initial phase of the drying process.
6. Allow the hull to dry as long as necessary (2-3 months average) to ensure all water has left the hull. Moisture in the hull will cause additional blistering.
7. Before beginning repair wipe the surface using **Interlux Fiberglass Solvent Wash 202** on a damp cloth.



Blistered Hulls (continued)

Repair

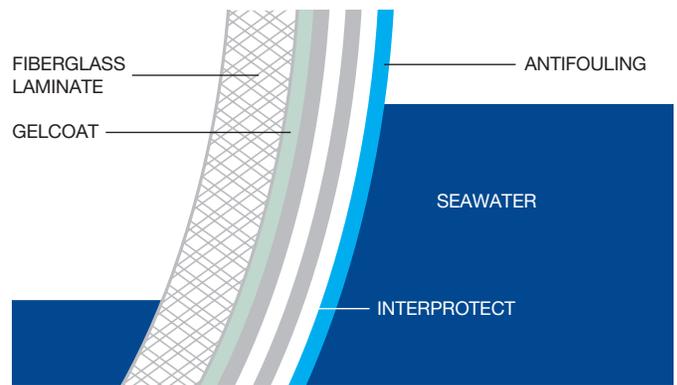
1. Clean surface as above.
2. Mix **Epiglass Epoxy Resin** Base and Cure. Stir together and then immediately pour material into a wide flat tray to prevent premature curing. Mix only what can be used in 20 minutes.
3. Apply **Epiglass Resin** to all areas where the gelcoat has been removed, wait a minimum of four hours and scrub with a stiff bristle brush using soap and water to remove amine blush. Rinse with fresh water. Sand with 80-grit production sandpaper and wipe clean with **Interlux Fiberglass Solvent Wash 202**. If it has not been overcoated within 24 hours, rewash with fresh water. **Note:** Amine blush is a waxy like residue from the epoxy curing process and can only be removed by scrubbing with water. Sanding will grind the residue into the scratches resulting in poor adhesion of coatings.
4. Mix Watertite **Epoxy Filler** or **Interfill® 830 Profiling Fairing Compound**. Refer to instructions on page 7.
5. Sand entire surface with 80-grit production sandpaper. Remove sanding residue.

Protection

Once the surface is completely covered and smooth, apply the water barrier using **InterProtect 2000E** or **InterProtect HS**.

InterProtect 2000E White

Coats of InterProtect White and InterProtect Gray can be alternated to ensure complete coverage and that the correct amount is applied:



No sanding between coats of InterProtect 2000E is necessary for up to six months.

Applying InterProtect 2000E to boats with blistered hulls

After repairing the hull as described above.

1. Mix three parts of **2000E Gray Base** or **2002E White Base** with one part **2001E Reactor**, and allow it to stand mixed for a minimum of twenty minutes for induction time. Mix only what can be used in five hours.
2. Apply coats of **InterProtect 2000E** as per overcoating chart on page 5. Apply **InterProtect 2000E** to build a total of 10 mils (0.010 inch) dry film thickness. It usually takes four to five coats to apply the proper amount of **InterProtect 2000E**, but the final dry film thickness is more important than the number of coats.
3. Apply antifouling paint to the **InterProtect 2000E** using the "Thumb Print" test. Refer to overcoating chart on page 8.

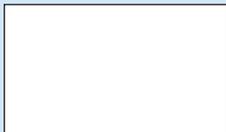
Applying InterProtect HS to boats with blistered hulls

After repairing the hull as described above.

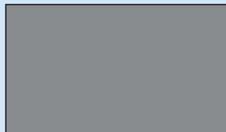
1. Mix two parts of **InterProtect HS Base** with one part of **InterProtect HS Reactor**. Mix only enough epoxy for one coat.
2. Apply **InterProtect HS** as per the chart above. Apply enough **InterProtect HS** to build a total of 7 mils (.0007 inch) dry film thickness. When applied by roller, a minimum of 3 coats are required. The final dry film thickness is more important than the number of coats.
3. Apply antifouling paint. The "Thumb Print" test cannot be used to determine when **InterProtect HS** is ready to overcoat. Refer to the **InterProtect HS** Product Datasheet for information on applying antifouling paint to **InterProtect HS**.

InterProtect 2000E is available in 2 colors:

White
Y2002E



Gray
Y2000E



InterProtect as a universal primer

Using InterProtect for the 'Ultimate' No Sand System

For new or unpainted fiberglass hull

Hull preparation

1. Wipe down dust and residue on hull with dry rags on entire surface being painted.
2. Mask off waterline and other areas with 3M blue masking tape.
3. Apply **Fiberglass Surface Prep YMA601V** with 3/8" nap roller on entire surface to be dewaxed. Work in 10x10 foot areas, in order to ensure product is removed before drying.
4. Scrub **Fiberglass Surface Prep YMA601V** with a 3M Doodlebug™ and Brown Scotch-Brite® abrasive pad. Ensure that all areas have been thoroughly scrubbed with the Doodlebug™ and pad. Near waterline or hard to reach areas, use a 3M Scotch-Brite® Scrub Sponge #74 or coarser to apply the **Fiberglass Surface Prep YMA601V**. Be sure to scrub the surface thoroughly.
5. Use wet rags OR spray down with high pressure rinse to wipe off all trace of **Fiberglass Surface Prep YMA601V**. Ensure that rags are changed frequently and not reused.
6. Verify that all wax was removed from the surface by using a spray bottle of water and checking for water beading. Repeat steps 3-5 if any areas have been found to bead up again.
7. Shake up the appropriate volume of **InterProtect 2000E Kit**. Mix the two components together by pouring the quart of reactor (**2001E**) into the under filled gallon of base **2000E**. To mix either place lid back on gallon container and place on paint shaker for a minimum of 4 minutes or mix thoroughly using a mixer on a drill.
8. Allow **InterProtect 2000E Kit** to induct (remain stationary) for 20 minutes prior to application. Pour **InterProtect 2000E Kit** into paint tray AFTER product inducts in can for 20 minutes.
9. Ensure hull is thoroughly dried before painting begins.

Applying primer and antifouling paint

1. Using a 3/8" nap roller, apply 1 coat of the reacted **InterProtect 2000E Kit** by roller, ensuring that all areas have been covered with the primer. Apply one heavy coat, so you cannot see the gelcoat.
2. Allow the **InterProtect 2000E Kit** to dry until it is thumb print tacky before applying the antifouling paint, do not let it dry more than 'tacky'.
3. Using a 3/8" nap roller apply the 1st coat of **Micron® Antifouling** onto areas that have been covered with the **InterProtect 2000E Kit**. Ensure that the first coat of **Micron Technology** or other compatible Interlux antifouling are applied while **InterProtect 2000E kit** is still thumb print tacky. Refer to overcoating chart on page 8.
4. Allow the 1st coat of Micron Antifouling to dry at least 16 hours before overcoating.
5. After the first coat has dried for 16 hours apply a 2nd coat of **Micron Antifouling** with a 3/8" Nap Roller.

This system uses InterProtect as a primer and not as a barrier system. Please refer to pages 8-10 for the application of a barrier system.

Note: **InterProtect HS** can also be used in the Ultimate No Sand System. Refer to the **InterProtect HS** Product Datasheet for more information including overcoating times to apply Interlux antifouling over InterProtect HS.

InterProtect Epoxy Technology provides:

- A hard, durable system with long lasting adhesive qualities, consistent overcoat times and quick dry which makes it ideal for use as a no sand primer
- A hard epoxy base to protect the gelcoat from abrasion damage
- Two colors, gray & white, to ensure complete coverage



InterProtect 2000E used as part of the 'Ultimate' No Sand System by boat builders and boat dealers coast to coast.

InterProtect as a primer for underwater metals

For underwater metals and hulls

InterProtect is recommended as a universal anti-corrosive primer for aluminum, bronze, stainless steel, cast iron and lead. Below the waterline it can be used to prime props, shafts, keels, trim tabs, thru-hulls and the lower units of outboards and outdrives. Above the waterline it is recommended for priming any metal that needs to be protected.

1. Remove all grease and other contaminants by wiping the surface with Interlux® **Special Thinner 216** or **Fiberglass Solvent Wash 202**.
2. Bring metal to a uniform bright finish by sandblasting or by sanding using a 36-grit sanding disc. All rust and other oxidation must be removed. Metal must be clean and bright with no residue remaining on the surface.
3. Remove all blast or sanding residue by using an air hose and broom or vacuum. Begin applying coatings as soon as possible.
4. Within one hour of sandblasting apply one coat of thinned **InterProtect 2000E** or **InterProtect HS** directly to the bare metal. Thin with 2316N or 2333N thinner, up to 10% by volume.

Fairing keels and underwater metals with InterProtect 2000E

1. If fairing is necessary, allow first coat of **InterProtect 2000E** to dry for at least 4 hours and apply **Watertite Epoxy Filler** or **Interfill® 830 Fairing Compound**. Ensure the fairing compound is cured and sanded with 80 grit paper prior to proceeding with more primer.
2. Once area is fair apply 2 more coats of **InterProtect 2000E**, allowing the appropriate dry times (see next page).
3. Refer to chart on the following page for dry times between last coat of **InterProtect 2000E** and antifouling paint.

For Aluminum Hulls

Aluminum is an excellent material for boat construction but care needs to be taken when preparing the substrate for use in saltwater. When bare aluminum is exposed to air, a layer of oxidation forms that needs to be removed. Once the aluminum is prepared properly, an epoxy primer, such as **InterProtect 2000E** is an excellent choice provide both water and corrosion resistance in salt water.

Note: InterProtect HS can also be used as a primer for underwater metals. Refer to the InterProtect HS Product Datasheet for more information including overcoating times to apply Interlux antifouling over InterProtect HS.



Surface preparation – bare aluminum

1. Prior to grinding or sandblasting it is imperative to solvent clean all surfaces with Interlux **Fiberglass Solvent Wash 202** for the removal of grease and oil or other surface contaminants. Use a clean dry rag, saturate with **Fiberglass Solvent Wash 202** and scrub surface thoroughly. Before **Fiberglass Solvent Wash 202** dries, wipe up completely with a clean dry rag.
2. For best results and adhesion of the entire system, sandblast to a clean white metal surface with medium mesh silica sand or other nonmetallic blast media to provide a blast profile of 3-4 mils (75-100 microns). Metal must be clean and bright with no residue remaining. If sandblasting is not possible, degrease as above using **Fiberglass Solvent Wash 202**. Grind aluminum with 24 to 36 grit sandpaper to a uniform, clean, bright metal surface 3-4mils (75-100 microns) anchor pattern.
3. After sandblasting or grinding remove all residue by using a clean (oil and water contamination free) air-line and by sweeping with a clean brush or broom.

Application method – Bare aluminum

1. Within two hours of sandblasting or grinding apply one thinned coat of **InterProtect 2000E** directly to the bare aluminum. Use thinner 2316N or 2333N, up to 15% by volume.
2. Apply 3 full coats of **InterProtect 2000E** by means of brush, roll or spraying.
3. Depending on substrate temperature, allow the final coat of **InterProtect 2000E/2001E** to dry 3 to 7 hours (test cure by using the “Thumb Print” test) and immediately apply the first coat of **Trilux® 33**, **Pacifica® Plus** or **Micron® CF**.

InterProtect as a universal primer (continued)

Dry Time Chart

Stage	Product	Number of coats	Wet film thickness	Dry film thickness	Sequential overcoating without sanding	50°F	70°F	90°F
Primer	InterProtect 2000E	3	7 mils per coat	3 mils per coat	Min Max	7 hrs 6 months	5 hrs 6 months	3 hrs 6 months

If filling and fairing is required apply **Interfill 830** or **Watertite** between the first and second coats of **InterProtect 2000E**. Follow the same overcoating times when using **Interfill 830** or **Watertite** as **InterProtect 2000E**.

Depending on substrate temperature, allow the final coat of **InterProtect 2000E** to dry 3 to 7 hours minimum and test cure by using the "Thumb Print" test. Immediately apply the first coat of **Trilux 33**, **Pacifica Plus** or **Micron CF** when you can leave a thumb print in the **InterProtect 2000E** and not get any epoxy on your thumb. Allow **Trilux 33** to dry a minimum of 16 hours between coats.

Antifouling	Trilux 33, Pacifica Plus or Micron CF*	2-3	4 mils	2 mils	Min Max	16 hrs Indefinite	16 hrs Indefinite	16 hrs Indefinite
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* In Canada, use **Tri-lux II**

Using InterProtect above the waterline

InterProtect has many uses above the waterline, including:

- Anticorrosive primer for bare metal
- Primer for cracked and crazed gelcoat like decks and hull sides
- Use with Interfill Fairing Compound for complete fairing system
- Use over Epiglass® Epoxy Resin and all clear epoxy resins
- Use InterProtect as a no sand primer over non-skid decks
- Oil & water resistant bilge coating

For complete systems call 1 800 468 7589 or go to www.yachtpaint.com



Image courtesy of Onne van der Wal

Equipment recommendations

Epiglass® Epoxy Resin

Apply by brush or roller ONLY

Brush: Use a natural bristle brush

Roller: Use a 1/8" 'yellow' foam roller

InterProtect 2000E

Brush and Roll

Brush: Use a natural bristle brush

Roller: Use a 5/16" or 3/8" nap solvent resistant roller

InterProtect 2000E

Spray

Airless Spray Pressure: 2400 psi; Tip size: 17-21 thou

Conventional Spray Pressure Pot:

Pressure – 50-65 psi (gun pressure);

10-15 psi (pot pressure); Tip size: 60-70 thou

Siphon Cup: Pressure – 50-65 psi (gun pressure);

Tip size: 70-85 thou

InterProtect HS

Spray (apply by airless spray ONLY)

Airless Spray Pressure: 3000 psi; Tip size: 24 thou

Brush and Roll

Brush: Use a natural bristle brush

Roller: Tests show that when rolling InterProtect HS, best results are achieved with a **Linzer Pro Edge Microfiber Roller Cover** with 1/4" or 3/8" nap. A 1/4" nap roller will give a smoother finish, but more coats will be necessary to achieve 7 mils DFT



When spraying **InterProtect Epoxies**, be sure to wear the appropriate safety equipment. See product label for details. For complete information on spray application get the Product Data Sheets and Material Safety Data Sheets at yachtpaint.com.

Application notes

The 3 most important things to getting a good, long lasting blister repair or prevention job are:

Hull preparation – Getting the hull cleaned and sanded properly.

Hull dryness – Making sure that the laminate is dry.

Using the right amount of epoxy – Thin films will re-blister.

- **Epiglass Epoxy Resin** must be overcoated with **InterProtect 2000E** or InterProtect HS prior to the application of antifouling paint.
- Before mixing **InterProtect 2000E** or **InterProtect HS** stir each component separately. This will insure there is no settling and help make the blending of the two components easier.
- After being mixed it is important to allow **InterProtect 2000E** sit for 20 minutes induction time to begin the reaction. **InterProtect HS** does not require an induction time.
- Minimum overcoating times for **InterProtect 2000E** are provided as a guide.

The best method to determine when the **InterProtect 2000E** is Ready-to-Overcoat with antifouling paint is to check the paint film using the 'Thumb Print' test which is: If the primer feels tacky and you can leave a thumb print in the paint film without getting any paint on your thumb the **InterProtect 2000E** is ready for overcoating. Test the paint film 1 hour after starting the application. Continue testing every 15 minutes using the 'Thumb Print' test until reaching the

Ready-to-Overcoat stage. Immediately, begin to apply the Interlux® antifouling paint once the **InterProtect 2000E** has reached the Ready-to-Overcoat stage. Refer to overcoating chart on page 8.

- Do not use the "Thumb Print" test when applying **VC® Offshore**, Baltoplate, VC®17m Extra, VC17m or any vinyl antifouling over **InterProtect 2000E**. Apply an extra coat of **InterProtect 2000E** and allow to cure for 24 hours and then sand with 80-grit sandpaper.
- Up to 6 months may be left between coats of **InterProtect 2000E** but the time between the last coat of InterProtect 2000E and the first coat of antifouling paint are much shorter and temperature dependant. The "Thumb Print" test is the best method to use to determine when to overcoat the **InterProtect 2000E** with antifouling paint. If maximum dry times are exceeded, apply another coat of **InterProtect 2000E** and then be sure to hit the proper over coating interval before the application of the antifouling paint.
- **InterProtect 2000E** is available in two colors: gray and white. An optional method of application is to paint each coat alternating colors. This ensures complete coverage and the correct amount of paint is applied.

When using **InterProtect HS** follow the recommended overcoating windows on page 9. VC Offshore and VC Offshore Baltoplate are compatible with InterProtect HS.

Accessory Products

Fiberglass Surface Prep YMA601V

Fiberglass Surface Prep is a water-based mold release agent remover, which precludes the need for sanding bare fiberglass when used as part of a no sand system. It is also a recommended cleaner to remove amine blush and other surface contamination.



Fiberglass Solvent Wash 202

Fiberglass Solvent Wash 202 is a blend of solvents that is used to remove mold release wax and other contamination from bare fiberglass.



Reducers

Interlux Thinners 2316N / 2333N

Interlux Thinners 2316N and 2333N are used to thin InterProtect 2000E and InterProtect HS. Thinning is recommended when applying InterProtect as an anticorrosive metal primer.



299E

Interstrip 299E is used to remove all types of paints from fiberglass, wood, metal, glass, and most plastics. The Interstrip 299E formulation stays wet longer, to lengthen working time.



Watertite YAV135

An easy to use epoxy compound for filling holes and repairing scratches in gelcoat and fiberglass above and below the waterline. It is easy-to-sand and can be applied to a thickness of 3/4" without sagging.



Interfill® 830 / 833

Interfill 830 and Interfill 833 are lightweight, high strength and impact resistance fillers for professional use. Use for large filling and fairing jobs.



InterProtect family of products



InterProtect® 2000

- For prevention and repair of gelcoat blistering
- Universal primer for above and below the waterline
- Excellent for use on underwater metals, hulls and keels
- Easy to apply – dries quickly – no sanding
- Use as part of a no sand system
- Available in two colors, Gray and White, so you can alternate colors to ensure full coverage
- A VOC compliant version of InterProtect 2000 is also available in gray

InterProtect® HS

- Versatile high solids two part epoxy primer
- For above and below the waterline
- Micro-Plates® Technology reduces water migration through the epoxy to the hull surface which could lead to blistering
- Micro-Plates provides protection from corrosion of metals
- High solids fewer coats required to achieve film build and barrier coat
- Fewer coats means faster applications
- Low VOC reduced solvent emissions
- The only barrier that protects at 7 mils DFT

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