



VARNISH

PRODUCT & APPLICATION GUIDE

BEAUTIFUL, EASY TO USE, LONG LASTING FINISHES



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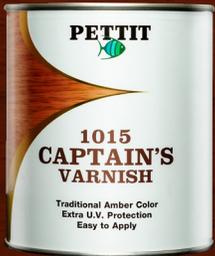


Exquisitely varnished wood is the reflection of the most beautifully maintained boats.

We have all marveled at a beautifully varnished wood finish and probably asked questions on what products were used and the application methods. As a boater, you take pride in the appearance of your vessel. You keep it in pristine condition and feel great satisfaction knowing that it's protected and you know that using a varnishing system not

only enhances the natural beauty of your boat, it also offers an excellent barrier against varying weather conditions, the sea, and the UV rays of the sun. You may have also felt slightly intimidated at the thought of undertaking a varnish project. This guide will help you through the process of completing a successful project.

PETTIT'S VARNISH LINEUP



Captain's Varnish 1015 is highly regarded for its ease of application, outstanding gloss retention and tough-yet-flexible durability. A combination of phenolic and alkyd resins blended with tung and linseed oils provide excellent performance. Its warm, light amber hue will enhance the rich, classic brightwork appearance.



Flagship High Build Varnish 2015 offers the best protection against the sun's damaging rays. With 6 times more UV inhibitors, this blend of phenolic and alkyd resins combined with tung and linseed oils offers excellent performance and a deep, warm amber hue. This high-build formula offers excellent abrasion resistance and a high gloss finish.



Captain's Ultra-Clear Varnish 2067 is a premium urethane varnish specially formulated for maximum durability and ease of application. The strong ultraviolet inhibitors maintain outstanding gloss long after ordinary varnishes have faded. Its tough surface provides remarkable resistance against scratching and chipping.



Captain's Satin Sheen Varnish V-975 is specifically designed to enhance the beauty of interior woodwork with its soft, satin finish. Its pale, durable, long lasting polyurethane coat is water and alcohol-resistant. Satin Sheen is easy to apply and is intended for interior use only.

CHARACTERISTICS & USAGE

	CAPTAIN'S VARNISH	FLAGSHIP HIGH-BUILD VARNISH	CAPTAIN'S ULTRA-CLEAR VARNISH	CAPTAIN'S SATIN SHEEN VARNISH
LIGHT AMBER HUE	✓	✓		
EXTERIOR USE	✓	✓	✓	
INTERIOR USE	✓	✓	✓	✓
COLD WEATHER APPLICATION	✓			
WARM WEATHER APPLICATION	✓	✓	✓	✓
UV PROTECTION	✓	✓	✓	
SATIN FINISH				✓



EZ-Wood Sealer 2018 uniformly seals and satisfies the absorbency of all raw woods prior to painting and varnishing. The sealer acts as a moisture barrier layer to prevent peeling and excessive absorption of vehicle from varnishes.



EZ-Poxy Performance Enhancer 3021 is an additive that can be used in all Pettit high-gloss varnishes. Its advanced formulation reacts with the varnish to provide exceptional durability, gloss, hardness, gloss-retention, scratch resistance, and longevity.

*EZ-Poxy Performance Enhancer 3021 is compatible with EZ-Wood Sealer, Captain's Varnish, Flagship High Build Varnish, & Captain's Ultra-Clear Varnish

EQUIPMENT PREPARATION



NECESSARY EQUIPMENT & MATERIALS

- **SANDPAPER** A range of sandpaper will be needed from 60-grit to 400-grit.
- **NYLON SCUFF PADS** When sanding edges use a fine nylon scuff pad rather than sandpaper because it will remove less varnish.
- **SANDING BLOCKS**
- **SCRAPERS** Scrapers that work by pulling rather than pushing are less likely to gouge the wood. Be sure to round the corners of the scrapers to help avoid gouging.
- **MASKING TAPE** Good quality masking tape that can be left on the surface through several coats of varnish is recommended.
- **TACK CLOTHS** To remove sanding residue. Cheesecloth dampened with solvent can also be used.
- **BRUSHES** While throwaway brushes can be used for stains, sealers, and even some of the build coats, use high quality China bristle or Badger hair brushes for finish coats.

SUGGESTED EQUIPMENT & MATERIALS



EZ Speed Strip™ 125 is a powerful chemical stripper that is effective against a wide variety of marine coatings and is safe for gelcoat. Its gel consistency allows it to work on horizontal *and* vertical surfaces without dripping or sagging.



Brushing Thinner 120 is the general-purpose thinner recommended for thinning and cleaning up varnish projects. It evaporates at a moderate rate and will help to create a clean, pristine finish for any varnish project.

- **VACUUM CLEANER** To efficiently remove heavy sanding residue.
- **FINISHING SANDERS**
- **HEAT GUN** For varnish removal in places where it would be difficult to use a chemical remover.
- **DROP CLOTHS**

SURFACE PREPARATION

PREVIOUSLY VARNISHED GOOD CONDITION

When preparing a previously varnished surface that is in good shape, take into account that some contamination such as wax or silicone may be on the surface and that sanding does not remove contamination.

The first step is to clean it well by wiping with a rag dampened with **Brushing Thinner 120** to remove any contamination.

Follow with a clean dry rag. Then sand with 220 to 320-grit sandpaper. Wipe with **Brushing Thinner 120** again after sanding. You can use a tack cloth to remove sanding residue but always wipe down with solvent after to be certain the tack rag did not leave residue behind.

Apply a minimum of two (2) coats of new varnish sanding between coats with 320-grit sandpaper.

PREVIOUSLY VARNISHED POOR CONDITION

If the old varnish is in poor shape, it is best to remove it and start from bare wood. Chemical varnish remover, such as **EZ Speed Strip 125**, will loosen the old varnish to allow for removal with a wide blade pull scraper.

Always use a sharp scraper and slightly round the edge of these tools with a file to avoid gouging the wood.

Once the varnish is removed, sand the bare wood with 120-grit sandpaper to open the grain and help the sealer or varnish penetrate into the wood. Always sand with the grain.

Remove the sanding residue by wiping with **Brushing Thinner 120**.

Now follow the Bare Wood instructions that follow.

BARE WOOD

Ensure the surface is dry and clean and has a moisture content between 15-20% before varnishing. Wood that is very dry when varnished is subject to expansion, cracking, micro-checking, and gloss loss when the varnish is in service. Sand the surface with 150 to 220-grit sandpaper.

After sanding, clean the sanding residue with a tack rag, vacuum, air hose, or cheesecloth dampened with **Brushing Thinner 120**.

Allow **Brushing Thinner 120** to dry out of the wood. Apply 1 to 2 coats of **EZ-Wood Sealer 2018** over the surface. Sand the surface thoroughly with 220-grit sandpaper.

SEALING THE WOOD

When making repairs or installing new wood, bed it down so that moisture does not get in and lift the varnish from underneath. A good practice when bedding down trim is to back prime the concealed surfaces with epoxy to prevent moisture from being absorbed into the wood from underneath. Check for moisture in joints. If wood looks black, remove the varnish and use a wood bleach. Then, wipe with a fast solvent like xylene to help dry out moisture, sand, and give it a final wipe down with solvent. Apply varnish before the wood absorbs more moisture. Excessive moisture in the wood usually leads to blistering of the varnish.

The object of all of the cleaning, scraping and sanding is to obtain a smooth, clean and even surface. Using the proper grit of sandpaper is essential. Trying to remove nicks, dings gouges and other defects with too fine of a grit sandpaper will only lead to frustration. When removing defects, it is

easier and faster to start with a coarse sandpaper, such as 60 or 80-grit, and then work through to the finer grits of 180 or 220-grit. Conversely, sanding varnish that is in good condition with too coarse of a grit will result in unnecessary work.

Many varnishers will use a thinned coat of the varnish they intend to finish with as a sealer coat. This method is perfectly acceptable, but using a clear sealer such as **EZ-Wood Sealer 2018** will yield better results. **EZ-Wood Sealer 2018** is used to seal all types of raw wood prior to varnishing. The sealer acts as a moisture barrier layer to prevent peeling and excessive absorption of vehicle from varnishes. It uniformly seals and satisfies the absorbency of all woods including teak and mahogany. It can be used in a wider range of temperatures and dries faster than varnish. After applying **EZ-Wood Sealer 2018**, lightly sand to a smooth surface before applying varnish.

APPLYING SEALER

1. Ensure the surface is dry and clean.
2. Sand the surface with 180 to 220-grit sandpaper.
3. After sanding, clean the sanding residue with a tack rag, vacuum, air hose or **Brushing Thinner 120**.
4. Apply 1 to 2 coats of **EZ-Wood Sealer 2018** according to directions.
5. Allow sealer to dry per product requirements.
6. Sand thoroughly with 220-grit sandpaper.



APPLYING THE VARNISH

You've prepped your surface and applied a sealer, but the job's not done yet. It's time for the final act: Applying the varnish.

1. Choose a dust-free (or as close as possible) environment. If working outside, do not work in direct sunlight or windy conditions.
2. Ensure all post sealer sanding residue has been removed with a tack rag, vacuum, or air hose.
3. If applying by brush or roller, add 10-15% of **Brushing Thinner 120** for the first coat. If applying with a spray gun, add 10-15% of **Spraying Thinner 121** for the first coat. In either case, only the first coat of varnish should be thinned.

VARNISHED WOOD IN POOR CONDITION

1. Remove all the old varnish with a paint and varnish remover, such as **EZ Speed Strip 125**, or by sanding.
2. Bleach the wood if necessary to remove water stains.
3. Proceed with the application system for bare wood shown on the next page.



BARE TEAK OR OTHER WOODS WITH HIGH OIL CONTENT

1. Sand the wood smooth with 120-grit production paper to open up the grain. Wipe the surface thoroughly with **Brushing Thinner 120** in an effort to aggressively remove as much oil as possible.
2. Apply a generous coat of **EZ-Wood Sealer 2018**. After an overnight dry, lightly sand the surface with 220-grit sandpaper and wipe it clean with a rag dampened with **Brushing Thinner 120**.
3. Apply at least four to five coats of varnish. Let each coat dry overnight, sand with 220-grit sandpaper, and clean off sanding residue with a tack rag before applying the next coat. Sand the next-to-last coat with 400-grit production paper prior to applying the final coat.



It should be noted that wood with a high oil content may eventually experience adhesion problems, as there is no way to totally eliminate the oil and prevent it from migrating to the surface. However, this application technique has proven successful in most circumstances.

APPLYING THE VARNISH



BARE WOOD

Apply at least four to five coats of varnish. Let each coat dry overnight, sand with 220-grit sandpaper, and clean off sanding residue with a tack rag before applying the next coat. Sand the next-to-last coat with 400-grit production paper and clean off sanding residue with a tack rag before applying the final coat.

VARNISHED WOOD IN GOOD CONDITION

1. Wipe old varnish with **Brushing Thinner 120** to be sure all dirt, wax, polish and/or grease has been removed.
2. Thoroughly sand the existing varnish with 180 to 220-grit production paper and wipe clean with a tack rag.
3. Apply at least two coats of varnish. Let the first coat dry overnight, sand with 400-grit sandpaper and clean off sanding residue with a tack rag before applying the final coat.



EXPERT TIPS

- If the surface shows signs of deterioration, flaking, or peeling, the varnish will need to be removed by either sanding or scraping.
 - When using **EZ Speed Strip 125**, scrape the old varnish first and then sand with sandpaper. This will help the paint and varnish remover penetrate the coating faster and make it easier to remove.
 - All recommendations for sandpaper in this guide are for production sandpaper. Other types of sandpaper may cut into the surface differently, so grit recommendations may be different. Others may have a stearate coating that may cause bubbling in the varnish.
 - Always wipe with a rag that has been dampened with solvent after sanding to help remove sanding residue.
 - Varnish jobs tend to fail first at the edges of the wood. This is because there is less film thickness on the edge than on the flat side of wood. Therefore, it is best when sanding edges to use a fine Scotch-Brite pad rather than sandpaper. Bronze wool can also be used.
- Do not use steel wool, as it may leave particles behind that can rust.
- When working outside, it is best to varnish in the morning after any dew has been removed from the surface. Varnishing late in the day can lead to poor drying and loss of gloss.
 - Never file or sharpen a scraper where the filings are likely to end up on an area that is going to be varnished or painted. These filings will turn into rust spots.

FREQUENTLY ASKED QUESTIONS

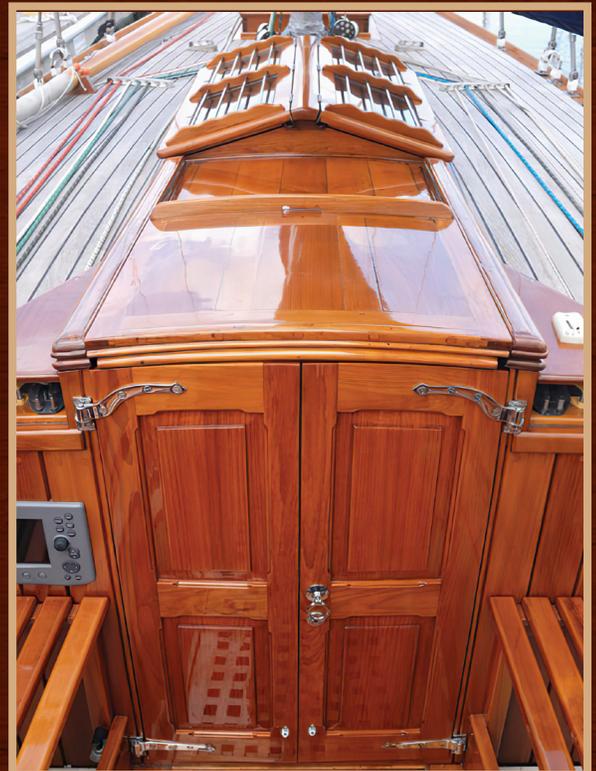
How do I eliminate brush strokes?

To eliminate brush strokes, focus on small areas. Always brush into the “wet edge,” that is, don’t start a fresh brush-load of varnish from the previous brush-load, but rather brush into the previous brush-load. This will help to eliminate brush-marks and overlaps that may occur if you are brushing out of the “wet edge”.

Try not to varnish in direct sunlight or in very warm, breezy weather conditions. If needed, thin the varnish 5-10% with **Brushing Thinner 120** to improve flow-out.

How many coats of varnish do I apply?

When applying to bare wood, a minimum of four (4) coats is required; when applying over existing varnish, a minimum of two (2) coats is required.



FREQUENTLY ASKED QUESTIONS

What is the required thickness of each coat of varnish?

- **Captain's Varnish 1015, Captain's Ultra-Clear Varnish 2067, and Captain's Satin Sheen Varnish V-975** should be applied in thin coats of no more than 3 wet-mils.
- **Flagship High Build Varnish 2015** can be applied in a slightly heavier coat of up to 4 wet-mils.

All coats should be allowed to dry overnight before sanding or recoating.

What happens if I get drips or dust in the finish?

Drips can occur when a coating is applied too thick. To prevent drips, apply thin coats. Applying several thin coats will often provide better results than a few thicker coats. If drips do occur, sand them out with 220 grit sandpaper with a slight overlap to the surrounding finish. You can then apply a new coat of varnish across the entire surface to even out and blend the appearance. Should dust get into the wet coating, allow it to dry completely. Once the coating is dry, sand back the surface just enough to remove the contaminants that have become lodged in the coating. Make sure to overlap the surrounding finish to even it out and then apply a new coat of varnish making sure to blend the appearance.



Why is the varnish taking so long to dry?

There are some very common reasons why it may take longer than described for the varnish to dry.

- High humidity or excessive moisture in the air can prevent proper drying of varnishes. If it is very humid out and you can wait until the next day to work on the project, try to do so. If not, bring your project into an air conditioned area or a room with a dehumidifier. Be sure to have the air conditioner pulling in air from the outside, not re-circulating indoor air, as poor ventilation will also extend dry times. Do not blow air directly onto the freshly varnished surface, as this could lead to hazing of the varnish film.
- Applying thick coats, or excessively applied paint films, will take much longer to dry, due to solvent entrapment. This occurs when the outside of the paint film dries faster than the inside, trapping solvents. The product will eventually dry, just wait it out. The varnish will become harder and more durable over time as the solvents leave the film. Apply varnishes at the recommended wet film thicknesses mentioned earlier.
- Temperatures 50°F and below will extend drying times considerably. If you are under time constraints, we suggest moving your work to a warmer area. Applying varnish and allowing it to dry in a warmer workspace will increase its drying rate.

FREQUENTLY ASKED QUESTIONS

Why are there bubbles in my varnish after I have applied it?

Bubbles can occur when applying varnish with a brush because the action of brushing can agitate the surface and introduce air into the finish. Over-brushing will introduce even more bubbles. The more you work a section, the thinner the film becomes and the faster the solvent evaporates, which does not leave enough time for the film to self-level. When this happens, brush marks and bubbles aren't able to level themselves out. To prevent this from occurring further, apply 10 to 15% more **Brushing Thinner 120** to the varnish. This will allow the varnish to dry slower, giving it more time to self-level.

If you do thin the varnish, additional coats may be necessary to maintain the same protection as full strength coats because the added solvent will reduce the amount of resin in the varnish. This method may be a bit more time-consuming but it will prevent air bubbles and yield a better finish. Occasionally even a good-quality natural bristle brush, such as a Badger hair brush, may induce bubbles into the varnish. If, after thinning the varnish as described above, you continue to see bubbles in the varnish, try changing to a high-quality white China or black China bristle brush for the next coat.





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