



Waterlox Marine Application Guide

WHERE TO USE

Beautiful. Natural. Durable. That's a Waterlox finish. A unique blend of Tung oil and resin, Waterlox showcases the natural beauty of wood, providing lasting, durable protection. This elegant, one-of-a-kind finish has been made by the Hawkins family since 1910, and is still made by hand according to the original family formula.

The origin of our name, Waterlox, stands for "locks out water." Therefore, we think our Waterlox Original Marine finishing system is the perfect solution for any and all exterior wood finishing project(s) that are in harmful elements like moisture, direct Ultraviolet rays, salt and fresh water and harsh weather, including:

- All marine brightwork (boat teak and wood work)
- Outdoor furniture
- Exterior doors and window casings
- Garage doors, entrances and trim

Together, this finishing system will penetrate, protect, remain flexible and beautify your wood. Using Tung oil on exterior projects such as boats is nothing new. In fact, one of the first recorded uses of Tung oil was by Chinese merchants, who used Tung oil back in the 14th century to waterproof and protect wooden ships.

As with any finish, special care and attention should be used when applying the Waterlox Original Marine finishing system. Waterlox delivers spectacular results, and to make sure you achieve just that, this guide will take you step-by-step through the proper application. We also recommend that you review our FAQs located on our website at www.waterlox.com.

PERFORMANCE HIGHLIGHTS

Features	Benefits
Tung oil-based	Penetrates surface Easy to maintain Enhances beauty of wood
Flexible	Moves with the wood Does not chip Tolerates wide temperature range
Water resistant ¹	Holds up to rain, sleet, snow, fresh or salt water
Resistant to Ultraviolet rays	UV causes the gloss level to fade which is the key to knowing it's time to re-coat

Protecting outdoor wood surfaces in direct Ultraviolet rays with clear topcoats that allow the natural beauty of the wood to shine through can be difficult. In fact, it is one of the coatings industry's toughest assignments. Surface preparation and regular maintenance are two key factors that have to be followed in order to finish and protect outdoor wood surfaces.

WHY IS THE WATERLOX ORIGINAL MARINE FINISHING SYSTEM SUPERIOR TO OTHER OUTDOOR PRODUCTS?



Waterlox Original Tung oil finishes are water resistant, stand up to heavy use and won't chip, crack or water spot. Waterlox is easy to apply, repair and re-coat when necessary. Other types of exterior finishing systems cannot reach the performance standards of the Waterlox Original Marine finishing system. Here's how the others compare:

Teak oil.

These products are usually made of a blend of linseed, Tung and other "mystery" oils. "Teak oil" looks nice and is easy to apply, but does not form a film, may water spot, may not prevent stains, and needs to be reapplied often since it evaporates.

Oil-modified/polyurethane.

These products provide a hard surface but look like a coating of plastic. Polyurethane gets brittle and can chip and crack with UV exposure. Once the urethane film is breached, water can get beneath it and turn the wood underneath black. It is also difficult to remove and needs to be sanded down to bare wood to be re-coated.

Translucent coatings.

Some popular teak finishes contain iron oxide pigments, almost like paint. This ingredient helps shield the wood against UV rays, but they give the surface an orange hue and hide the natural beauty of the wood.

With Waterlox, maintenance is as simple as applying another coat without any surface preparation other than cleaning. You will also have sufficient time to recoat before the wood becomes unprotected.

TIP

As with any exterior finish that forms a film, if the Waterlox Finishing system is left un-maintained, the UV will continue to shrink the film and the film will eventually peel.

CHOOSING YOUR FINISH

Begin all projects with our Waterlox Original Marine Sealer, followed by our Waterlox Original Marine Finish for the following benefits:

- Penetrates, water-resistant and forms a protective yet elastic finish against moisture, UV and daily use.
- Non-toxic and food-safe when cured.²
- Easy to use and apply.
- Easier to maintain than other exterior clear finishes or surface finishes.
- Lasts much longer and requires less maintenance than a raw oil.

Waterlox Original Marine Sealer

- Formulated as a traditional exterior Tung oil sealer.
- 26% solids for maximum penetration. Waterproof. Requires no thinning.
- For use in conjunction with our Waterlox Original Marine Finish.
- Waterlox Original Marine Sealer and Waterlox Original Sealer/Finish can be used interchangeably.

Waterlox Original Marine Finish

- Produces a high gloss appearance.
- Formulated as a traditional exterior Tung oil spar varnish.
- Forms a protective and elastic finish against sun/UV rays, harsh weather and moisture exposure.
- Used as a finish coat only, over base coats of Waterlox Original Marine Sealer.



- Easier to maintain than other exterior clear finishes.

Our Marine Finishing system is not recommended for use on exterior horizontal walking surfaces such as decks or any pre-treated lumber.

COVERAGE/THINNING

One gallon covers 500 square feet per coat. One quart covers 125 square feet per coat. The number of coats depends on the porosity of the wood being finished (check the Wood hardness FAQ (Janka Chart)). No thinning necessary.

DRY TIME

Our general rule of thumb is to wait 24 hours between coats. Poor ventilation, high humidity or cool temperatures may increase dry times.

VENTILATION

Proper ventilation and adequate air circulation must be provided when using any wood finishing materials. Most oil-based varnishes dry upon exposure to oxygen, which is also known as "oxidative cure." A lack of cross-ventilation (air exchange) provides less free oxygen, slowing the drying process. Cross-ventilation is the biggest factor affecting dry times. It is not recommended that any solvents or solvent-based materials be used in a non-ventilated area. It is the oxygen molecules in the air that interact with the varnish, creating a chemical reaction and causing the film to dry. Therefore, the better the ventilation (during and after all coats) the quicker the film obtains its final hardness and other properties.

Read the directions on the product label(s) completely before using, including information related to the use of a respirator while applying the finish. If finishing a project indoors, completely review the Drying, Curing and Ventilating FAQs on the website. Lingering odor indicates inadequate ventilation, high humidity or both. If you cannot ventilate the area choose another product.

Be sure to use proper ventilation (if the project is completed somewhere other than outdoors):

- While applying the coating,
- During the curing process (first 24 hours after each coating is applied), and
- Continue to ventilate the area for 7 days after the final coat is applied.

APPLICATION TOOLS

For safety: rubber gloves, goggles and a respirator fitted with an organic cartridge.

A natural bristle paint brush. This type of brush will hold more finish than a synthetic bristle brush.

A lint-free rag.

A container that allows decanting of the amount of finish to be used for the project.

A vacuum, compressed air, or rag wetted with mineral spirits (paint thinner)

Mineral spirits, turpentine or paint thinner.

TIPS

- There are two basic methods to follow to properly clean paintbrushes.
 1. Cleaning method:
 - Have two containers ready. One for the brush and one for the "used" paint thinner.
 - Pour about 1 inch of paint thinner (mineral spirits) into one of the containers.
 - Insert the brush into this container and press out the bristles into the thinner. Varnish will be released into the thinner.
 - Pour the contaminated varnish/thinner mixture into the other can.



- Repeat steps 1, 2 and 3 several times until the thinner remains clear (no varnish).
 - The brush is now cleaned and ready for the next coat or job.
2. The other option is to allow the brush to dry and dispose of it in a proper trash receptacle. Once the brush has dried it is inert and non-toxic. Use a new brush for each subsequent coat.
- NEVER just soak the brush in paint thinner, the Waterlox will gel and you will be applying what looks like little seeds on your next coat.

CLEAN UP AND STORAGE

CLEAN UP

Clean application tools immediately with paint thinner (mineral spirits) or turpentine. Properly dispose of rags, applicators and waste. Read carefully cautions on the product label(s).

STORAGE TIPS

Keep containers of Waterlox closed when not in use and keep in a cool, dry place. If stored properly, an unopened can of Waterlox has an almost indefinite shelf life. Cold temperatures will not negatively affect the product, but if Waterlox has been chilled or exposed to freezing temperatures, allow the product to stand for at least 6 hours in temperatures above 60° F before using. DO NOT artificially heat Waterlox products.

Partially filled containers may gel since Waterlox dries through oxidation. When a container is opened, it is exposed to oxygen and the remaining unused portion may begin to oxidize. This leads to skinning and eventually gelling of the product.

For the best results, pour the Waterlox you need to complete your job into another container and promptly reseal the original container (replace both the metal seal and screw top on the oblong can(s) and the lid on the round can(s)). DO NOT return any unused portion to the original can.

For proper storage, oxygen inside the Waterlox can must be displaced, by one or more of the following methods:

- Decant the product into a smaller airtight glass or metal container. DO NOT use plastic. If using a previously vacuum-sealed jar (e.g. pickles or baby food) use plastic wrap inside the lid to create an adequate seal.
- Use clean marbles or stones to raise the level of the finish and thereby displace the oxygen.
- With rectangular cans, squeeze the sides to push the liquid up and seal before the air returns into the can.
- "Float" the product with an inert gas, such as carbon dioxide or argon, or Bloxygen that is heavier than air.

Read carefully all cautions on the product label(s).

STAINS AND FILLERS

In today's ever changing world, more and more products are available due to market forces and general reformulation. Therefore, we are not aware of every type of colorization and filling process available.

STAINS

Generally speaking, Waterlox Marine Sealer can be used over any type of stain (water-based, solvent-based, alcohol based dyes, fast set types, etc.) provided it is completely dry (follow manufacturer's recommendations for dry time or wait 72 hours, whichever is longer) and does not contain any waxes or



silicones. We also recommend that you steer away from any type of stain that forms a film over the wood, for example a stain containing urethane or some thicker gel type stains.

TIPS

- If staining a wood project, do not skip any of the recommended coats of Waterlox as described in this project guide.
- An unstained surface finished with our Waterlox Marine Finishing System produces an old-fashioned, hand-rubbed natural looking finish. Our special formula based in Tung oil brings out the natural patina of wood. With some species of wood this will dramatically change the look and staining may not be necessary, we suggest testing an inconspicuous area of your project or a scrap piece of wood from your project first before assuming you will need a stain coat. Regardless if stain is used or not, you will want to test all coats of the finishing system before making your decision.
- Keep in mind that not all pieces or boards of a single species of wood will stain the same; some will not match your sample board. Your stain/topcoat system may not transfer from one species of wood to another with the same effect.
- If stain is desired, be sure to follow the manufacturer's directions for cure time or wait 72 hours, whichever is longer, before applying our Waterlox Marine Finishing System. NEVER apply Waterlox Original Marine Sealer over a stain coat that is not dry. Applying finish over top of it will only elongate the dry time because oxygen will not be able to get to the stain coat.
- NEVER sand a surface that has been stained, as this process will change the color.

FILLERS

Most fillers are compatible with our Waterlox Marine Finishing System other than those containing any wax or silicone. We also recommend using fillers that are marketed as being paintable and stainable, as this is an indication that they can be coated.

Follow proper application and spread rate procedures.

PREVIOUSLY FINISHED WOOD APPLICATION

The Waterlox Original Marine finishing system performs best over bare wood and is not designed to be used as a top coat over previously finished surfaces (does not refer to stain coat(s) if used). Strip previously finished surfaces to bare wood, and then apply as described under "New Wood Application".

NEW, WEATHERED OR UNCOATED WOOD

Prepare the surface by sanding with 80 – 120 grit sandpaper and wipe clean with a tack cloth or cloth dampened with paint thinner. Other methods of preparing weathered wood such as deck cleaners (oxalic acid), TSP (trisodium phosphate), power washing or a liquid bleach solution are all acceptable methods. Follow instructions provided by the manufacturer and always clear water rinse the wood surface and let dry a minimum of 48 hours before applying the finish. If there are any glossy patches or mill glaze, scuff sand those areas with 60 – 80 grit sandpaper and wipe clean.

TIPS

- Waterlox does not recommend coating over new pressure-treated wood (requires a 6 - 8 week weathering period) or lumber that is water-repellent treated (requires a minimum 12 month weathering period).
- Always remove any mildew, fungi, or nail rust prior to application with either oxalic acid or a bleach solution. Always clear water rinse the surface after cleaning.



NEW WOOD APPLICATION

<i>For best results:</i>	
<ul style="list-style-type: none"> • Apply when surface and air temperatures are between 45° F and 90° F (7-35° C) • Saturate all end grains well • Apply in the direction of the grain • Allow 24 hours between coats • Moisture content of wood should be below 18% 	<ul style="list-style-type: none"> • Do not apply in direct sunlight • Do not apply when surface is hot to the touch • Do not apply when rain or dew is expected within 4 hours • Do not shake or stir contents of cans • Do not thin

1. Waterlox may alter the appearance of the wood. Our Waterlox Marine Finishing System is based in Tung oil, which brings out the natural patina of wood. With some species of wood this will dramatically change the appearance and staining may not be necessary. Test an inconspicuous area of your project or a scrap piece of wood from your project before assuming the need for a stain coat. Even if stain is not a consideration, test all intended coats in a test area before beginning the entire project.

2. Preparation of the surface is the most important step in the finishing process. To maximize the penetration of Waterlox Original Marine Sealer, sand the surface with 100 or 120 grit sandpaper.

3. When sanding is complete, clean the surface with a rag dampened with mineral spirits (paint thinner), which will attract any remaining dust and dirt. Mineral spirits (paint thinner) is recommended because the Waterlox Original Tung oil finishes are based in this solvent and are therefore compatible with it if any residual is left on the surface. Mineral Spirits (paint thinner) also evaporates slower than other more intense solvents such as lacquer thinner. This step should be completed before finishing the project, between each coat and after doing any sanding.

4. The number of base coats of Waterlox Original Marine Sealer will vary based on the type of wood being finished. As a general rule, most hardwoods will require two base coats. Softer woods like pine, fir or spruce will require three. Use the Wood hardness FAQ (Janka Chart) to help determine the hardness of your wood species. Below is a breakdown of the number of coats to apply to your project:

HARDWOODS

Oak, Ipe, walnut, Brazilian cherry, etc.

1 Coat of Waterlox Original Marine Sealer

2 Coats of Waterlox Original Marine Finish

All coats applied at 500 square feet per gallon per coat or 125 square feet per quart per coat

SOFTWOODS

white/red pine, fir, spruce, cedar, etc.

2 Coat of Waterlox Original Marine Sealer

2 Coats of Waterlox Original Marine Finish

All coats applied at 500 square feet per gallon per coat or 125 square feet per quart per coat

To determine the amount of finish needed, simply multiply the square footage of the project times the amount of coats needed and divide by 125. We have made it easy for you with this materials calculator, and examples are shown below:



Example: 250 square feet of oak: 250 square feet x 3 coats= 750 total square feet ÷ 125 square feet per quart per coat = approximately 2 quarts of Waterlox Original Marine Sealer and 4 quarts (or 1 gallon) of Waterlox Original Marine Finish to complete all 3 coats.

Example: 250 square feet of pine: 250 square feet x 4 coats = 1,000 total square feet ÷ 125 square feet per quart per coat = approximately 4 quarts (or 1 gallon) of Waterlox Original Marine Sealer and 4 quarts (or 1 gallon) of Waterlox Original Marine Finish to complete all 4 coats.

5. Apply all coats liberally with the grain using a quality natural bristle brush at the recommended spread rate. If your intended application method is with a rag versus applied liberally with a brush, this will most likely result in only ½ to ¼ of the recommended film build for each coat. If this is your preferred method of application, double or quadruple the amount of coats applied.

TIPS

- Waterlox Original Marine Sealer and Waterlox Original Marine Finish do not require shaking, stirring or mixing.
- Waterlox Original Tung oil finishes are penetrating oil finishes that are formulated to self-level. Do not wipe on and off the finish.
- BATCHING. If more than one container of finish is needed to complete a coat, the containers should be batched together before starting the coat.

6. Sanding for adhesion purposes is not required between coats of Waterlox Original Tung oil finishes. This makes Waterlox unique and different from most surface finishes which need abrasion for inter-coat adhesion.

Most surface finishes such as urethanes require the sanding process to create what's called a "profile". A profile is similar to a mountain range microscopically. Failure to sand/abrade between coats of a surface finish can result in delamination of the new coat from the old coat. With Waterlox Original Tung oil finishes, new coats will actually bond with the previous Waterlox coat and becomes part of it rather than a layer on top of it.

Even on a finely sanded wood surface, there are peaks and valleys as well as spots of hard and soft grain. When you apply the first coat of Waterlox, it's like snowfall on the mountains. The snow caps the peaks and begins to fill the valleys. If you sand, you will unseal the caps and there will be less to flow to the valleys when you apply the next coat of finish. This will result in the cap being re-sealed again, and will therefore result in less available finish to flow into the valley. If you do not sand, then the next coat will flow away from the sealed caps and do more to fill the valleys. After the third or fourth coat, this self-leveling process is complete.³

TIP

NEVER sand a surface that has been stained, as this process will change the color.

7. Allow each and every coat to dry for 24 hours. Once the last coat of finish has been applied, allow it to cure for 72 –96 hours. During this cure time, do not use the surface.

RE-COAT AND MAINTENANCE

Another benefit of Waterlox Original Tung oil finishes is that they are tough enough to protect against moisture, sun/UV and harsh weather, and are easy to maintain. As your surfaces age and the UV degrades



the film, the gloss level will soften and reduce. Simply clean the surface and re-coat with Waterlox Original Marine Finish.

To determine if recoating is necessary, spray water lightly on the wood surface. If the water darkens the wood, then it's time to recoat. Maintenance schedules vary widely according to the location and exposure of the wood surface to the harmful outdoor elements. However, the following general rules apply.

Little or No Direct Sunlight

If Waterlox Original Marine Finish is applied on a wood surface in a location that receives little or no direct sunlight, you may never have to re-apply or perform any other general maintenance other than an occasional washing of the surface to remove any dirt accumulation that might occur. Maintenance can be performed by using a low-psi power washer or a mop or sponge with a mild solution of soap or white vinegar. You may also use our Waterlox Original Cleaner Concentrate. Simply wash the surface and rinse with clear water. This is recommended to prevent a build up of dirt that traps other harmful chemicals or provides a breeding ground for mold or bacteria.

TIP

Never use phosphorous or ammonia-based cleaners on any Waterlox Original Tung oil product. An occasional washing/cleaning with a 5% bleach and water solution is acceptable, but not on a reoccurring basis (weekly or more).

Partial or Full Sunlight

If Waterlox Original Marine Finish is applied on a wood surface in a location that receives partial or full sunlight, the above cleaning procedure should be followed as often as needed to reduce the accumulation of dirt build-up. The length of time and intensity of outdoor exposure will require a re-coat of the product that will be determined by a visual inspection of the surface. A re-coat should be performed before or when:

- Any noticeable graying of the wood surface is noticeable,
- Any whitening of the surface (matte or no gloss appearance) is noticeable,
- Any other appreciable color change is noticeable,
- Any staining by natural elements is noticeable (water run off lines, rust staining from gutters or any other metallic source) - wash these areas to remove the staining prior to re-coating, or
- Any other erosion or suspected film loss is noticeable.

Prior to re-coating the surface, wash the surface completely using a low-psi power washer or a mop or sponge with a mild solution of soap or white vinegar. You may also use our Waterlox Original Cleaner Concentrate. Simply wash the surface and rinse with clear water. Once the surface is clean and dry, apply another full-bodied (no thinning with solvent) coat of Waterlox Original Marine Finish in the same manner as it was initially applied. It is imperative to keep the film build at or near initial thickness and the surface as clean as possible to provide the proper protection. Do not apply a coat in direct sunlight.

Extreme Conditions

If Waterlox Original Marine Finish is applied on a wood surface in a location that is subject to extreme conditions, such as near the ocean or near an industrial setting where wind, rain, dirt, salt and intense sunlight are prevalent, the surface may need to be re-coated once or twice per year.

PRODUCT INFORMATION HOTLINE

To answer any wood finish questions or for more information visit our website at www.waterlox.com or call 800.321.0377, Monday – Friday, 9 am – 4 pm EST (excluding holidays).



CAUTIONS

- For MSDS information, visit the technical download page within the product section of our website at waterlox.com.
- DANGER! CONTAINS ORGANIC SOLVENTS. COMBUSTIBLE LIQUID AND VAPOR. HARMFUL OR FATAL IF SWALLOWED. USE WITH ADEQUATE VENTILATION. KEEP OUT OF REACH OF CHILDREN.

FOOTNOTES

¹Waterlox Original Tung oil finishes are water resistant when applied at the proper spread rate and number of coats.

²Tung oil is non-toxic and food-safe, although, Tung oil is pressed from the nut of the Tung tree, which would therefore be considered tree nut oil. If you or someone who will be living with the finish has a tree nut allergy, consider whether or not this is a factor in finishing your wood project.

³This is the most important reason to obtain the recommended spread rate of 500 square feet per gallon per coat.