

General Finishes Water Based Finish Application Guide

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These are general instructions to guide you through the finishing process using water based products. Always refer to the manufacturer's specific instructions. Application guidelines for each manufacturer may vary.

Attributes of General Finishes Water Based Finishes

For a printer friendly version of this page in PDF format, [click here](#). This information has been developed to assist you in selecting the best finish for your project. Application techniques differ between oil based and water based products. There are several factors that may influence your choice.

Strong, Clear Vibrant Colors	Nothing produces beautiful colors better than water based finishing products. Red, blues and greens and everything between produce vibrantly in water based finishes. Whether you want brilliant hues to enhance a neutral room, a touch of whimsy or the comfort of classic colors; furniture color is the perfect venue for self expression. With unfinished furniture, the possibilities are endless.
Top Coat Color	Water based top coats are milky white in the can, dry to a crystal clear finish, and will remain clear throughout the life your project. Oil based top coats have a slight amber color in the can, and dry to a clear finish which can darken over time.
Clean Up	Water based finishes clean up conveniently with water.
Non-Combustible	Water based products are non-combustible, unlike oil based products.
Recommended Finish For Open Grained Woods	Water based products are a topical finish. We recommend using them on any woods that penetrate easily, such as pine or aspen, to produce a more even looking finish. Conversely, oil based stains tend to penetrate the wood more, and can bring out more variation in the final result. With that said, remember you are applying finish to parts of a tree, and every piece will look different! Click here for a wood species chart (14.7 kb pdf) or just use the fingernail test. If your fingernail dents the surface, you have a soft wood, like pine or aspen.
Sun Light	The sun affects everything. If left in strong sunlight, the pigments and dyes in Wood Stains will fade like everything else. However, water based Milk Paints paints are an ideal exterior product and hold color quite well over time.
Grain Raise	Water based products produce more grain raising than oil based finishes - they do require a different finishing technique. Before applying the finish, spray the project with water or rub down with a damp cloth. Allow the wood to dry and then sand lightly to remove the raised grain. This conditions the wood to accept water based finishes. You will get a perfect finish by following the application instructions. The amount of grain raising is dependent on the type of wood species.
Dry Time, Temperature & Humidity	Water based products dry faster so your project can be completed faster. Dry times are temperature and humidity dependent. Dry time is normally 2-4 hours under ideal conditions (70°and 70% humidity). Cooler temperatures or higher humidity will prolong dry time to 8-10 hours. Water based finishes must be applied at temperatures above 65 F. Cooler temperatures will adversely affect how the finish will level and harden, causing fish-eyes or craters. If it is cold enough to wear a sweater it is too cold to apply a water based finish. Good ventilation, air movement and higher temperatures will accelerate dry time. If working in high temperatures or low humidity, water based finishes may be thinned with 10-20% water or General Finishes Extender (3 to 6 oz. per quart) to improve open time for application. High humidity can extend the dry time but will not harm the final finish.
Mixing Custom Colors & Tinting	You can create unique colors by mixing any two shades of water based products. Be sure to write down exactly how much of each color is in the mix and mix enough to complete the entire project. Tinting may be accomplished by adding 2 oz of Wood Stain and 2 oz. of water to a pint of Top Coat (or 4 oz. of each to a quart). Mix the water and stain together first, then add this mixture to tint the Top Coat. Stir well. Do not mix water based products with oil based products.
Cure Time	Allow the final Top Coat to cure for a period of 14 days to reach optimum hardness. You may use your furniture sooner. Just treat it with special care during the curing period.

Maintenance To maintain the finish clean surface with a damp washcloth and wipe dry. Cleaners such as Pledge and Murphy's Oil Soap are not recommended because they leave a dull residue on the finish. Water based surfaces may be cleaned with a damp cloth or General Finishes Orange Oil. Do not use household cleaners or window cleaners. Paste wax is not recommended because it builds up and yellows, thus becoming a maintenance problem. Top Coats may be recoated at any time in the future. Remove any grease or dirt, lightly sand with #320 or finer grit sandpaper, and then apply another coat.

Coverage

150 sq. ft. per quart.

Storage

Keep from freezing.

Spraying

While both oil based and water based products can be sprayed, water based products really spray like a dream with water clean up. Water based topcoats are self leveling and dry quickly. **For more information on spraying click here.**

Surface Preparation

For more details regarding preparation, supplies, work area tips, etc. visit our Preparation page.

- All surfaces should be clean and free from all dirt and oils.
- Sanding is a progressive procedure. Do NOT start sanding with very fine sandpaper on unfinished wood. Prepare the surface by using medium sand paper first, and then proceed to finer grades. Water based finishes need a smoother surface than oil based finishes, but do not over sand or you may seal the wood so much that it will not take a finish. Sand raw wood in the direction of the grain starting with a coarser grit sand paper such as #120 sandpaper, and finish the final sanding with a fine grit sandpaper such as #180 or #220. End-grains (areas where the wood has been cut against the grain), such as the front side of a table, tend to soak up more stain than other surfaces. Give end-grain areas an additional sanding to control the absorption of stain. Refer to our sanding tutorial for more information.
- We recommend minimizing the grain raise, especially on hardwoods such as Oak and Ash. After completing preparation sanding and before applying the finish, spray the project with water or rub down with a damp cloth. Allow the wood to dry and then sand lightly to remove the raised grain. This conditions the wood to accept water based finishes.
- Option for wood stains: Soft woods such as Pine and Aspen absorb wood stain at an uneven rate and may respond better to staining if the wood is pre-sealed. A natural (clear) stain can be applied to raw wood to condition the surface for uniform penetration of the stain. Pre-sealing will cause the final stain to be lighter. Always test your color on a hidden part of the furniture! Allow the natural clear stain to dry 1 hour before applying your final stain color.
- Remove dust with an air hose, damp cloth or "oil free" tack cloths. Do not use oil based tack cloths when using water based finish. Most tack cloths contain oil and will contaminate the surface.
- Do NOT use steel wool when preparing wood for water based finish, as steel particles will cause rust spots.
- There are two methods to fill nail holes with wood putty: 1) fill holes before you stain using putty that dries hard and can be sanded and stained, or 2) stain the wood, apply one Top Coat, and then use water based color putty that matches the stain.

Supplies Needed

- Lots of good quality paper towels or lint-free cloths for wiping. Do not use tee shirts with water based products – they do not absorb well.
- Foam brushes or latex paint pad applicators and a bristle brush to pull stain out of corners. You must brush or wash paint pad applicators before use to remove loose bristles. Note: purchase a brush that will fit in the can.
- #120, #180 or #220 grit sandpaper for sanding raw wood.
- #320 or #400 grit sandpaper or superfine sanding sponges for buffing between Top Coats. Do not use steel wool because steel particles left behind will rust.

- Soap and water for clean up.
- Paper plates and aluminum foil to make disposable paint trays.

Application of General Finishes Water Based Wood Stains



Helpful Tips

- Remove hardware from furniture. Taking a little extra time to remove backs of cabinets, drawer fronts etc, will make staining much easier.
- To minimize grain raising, complete surface preparation sanding and prior to applying Top Coat, dampen the wood with a wet sponge or spray bottle. Allow the wood to dry completely and lightly finish sand again with #180 to #220 grit sandpaper. Do not sand through the grain raise layer. This conditions the wood to accept water based finishes.
- To get a consistent stain on soft woods such as Aspen, use Natural Stain as a pre-stain conditioner. Apply Natural Stain, wipe off evenly, wait 30 to 60 minutes and apply your stain color. Always test the color on the underside of the project before you begin. It is your responsibility to insure that the color is what you want.
- All top coats (water, oil, lacquer, wax, etc.) may be used over Water Based Stains if they have dried properly. All Wood Stains may be intermixed to create custom colors or may be lightened by adding Natural Stain.
- A second coat of stain will produce a slightly darker color.
- If working in high temperatures or low humidity, Wood Stains may be thinned with 10-20% water or General Finishes Extender (3 to 6 oz. per quart) to improve open time for application.
- Tinting may be accomplished by adding 2 oz of Wood Stain and 2 oz. of water to a pint of Top Coat (or 4 oz. of each to a quart). Mix the water and stain together first, then add this mixture to tint the Top Coat. Stir well.
- Use only tack cloths made for water based products (containing no linseed oil).

Hand Application of General Finishes Water Based Wood Stains

- Always stir the contents well. Stirring reduces the thickness of the stain and distributes pigments that may have settled to the bottom of the can.
- It is essential to apply a wet, liberal amount of stain with a foam brush or a latex paint pad applicator to insure easy workability. If too little stain is used, the surface can dry too quickly causing an uneven appearance.
- Divide your project into manageable sections (top, side, drawer, door).
- Stain a complete section and wipe off the excess evenly with the grain using paper towels or a clean cloth. Check for missed spots and lap marks before moving to the next section. Immediately correct lap marks by rewetting the entire working area with stain and wiping the excess off.
- Sanding between coats of any stain or top coat is referred to as Buffing. We do NOT recommend buffing between coats of stain because you may remove an area of stain that cannot be re-blended. If you must buff because you have imperfections that need to be smoothed out, do so with caution using a superfine sanding pad or #320 or #400 grit sandpaper. Do not buff prior to the first application Top Coat.
- On most projects three or four coats of Top Coat is just right. On projects receiving extra wear such as table and desk tops, additional coats will add more protection. Tip: use our High Performance Polyurethane for even more durability. For more instructions about applying Top Coats, click here.

Application of General Finishes Country Colors



- Always stir the contents well every time you open the can. Stirring reduces the thickness of the stain and distributes pigments that may have settled to the bottom of the can. It may take several minutes to thoroughly mix the contents so that the color remains consistent as the contents are used up.
- Always do a test first on the back, bottom or other inconspicuous area to check the stain color before proceeding. Do not practice on your new furniture. Every piece of wood and every wood species is unique and will finish differently. If the stain looks evenly coated and you like the look, one coat of stain is adequate. A second coat, applied after the first one is dry, will give you a darker and deeper color.
- Divide your project into manageable sections (top, side, drawer, door) and stain one surface at a time. It is essential to apply with a wet, liberal amount of stain. Load up a foam brush or latex paint pad with product and apply LIBERALLY, keeping the surface wet with product until you are ready to wipe that section off. If too little stain is used, the surface can dry too quickly causing an uneven appearance.
- For a stained look with the wood grain showing through, apply stain to a complete section and wipe off the excess evenly with the grain using paper towels or an absorbent cloth (not a tee shirt). Check for missed spots and lap marks before moving to the next section. Immediately correct lap marks by rewetting the working area with stain and wiping the excess off.
- For more solid color (such as when using Country Colors), don't wipe off the stain. Just even out the finish with the applicator. If you want a more "painted" look, let the first coat dry 2-4 hours and apply a second coat. If applying two coats of Country Colors, allow second coat to dry 24 hours before applying Top Coat.
- If working in high temperatures or low humidity, water based finishes may be thinned with 10-20% water or General Finishes Extender (3 to 6 oz. per quart) to improve open time for application.
- Sanding between coats of any stain or top coat is referred to as Buffing. We do NOT recommend buffing between coats of stain because you may remove an area of stain that cannot be re-blended. If you must buff because you have imperfections that need to be smoothed out, do so with caution using a superfine sanding pad or #320 or #400 grit sandpaper. Do not buff prior to the first application Top Coat.
- On most projects three or four coats of Top Coat is just right. On projects receiving extra wear such as table and desk tops, additional coats will add more protection. Tip: use our High Performance Polyurethane for even more durability. For more instructions about applying Top Coats, [click here](#).

Application of General Finishes Water Based Milk Paints and Glaze

Water based Milk Paints can be used with glazes and water based stains to create decorative finishes such as distressing, antiquing, faux marble, rag rolling, or color washing. Creating these layered techniques requires using layers of color combined with sanding techniques. The results are stunning and well worth the effort.

Distressing is the technique of marking the wood to give the character of generations of use. The most common technique is distress sanding. Other tools can be used to give further character to wood; hammers, nails, screws, old hardware, literally anything you can pound into the wood that would leave an imprint. Then start hammering away. If it's been a long week and you need a lift, start a little character therapy project for yourself. Get rid of all that stress and distress a piece of furniture at the same time!

Antiquing is another form of distressing using sanding techniques, often followed by glazing to give the appearance of an antique piece of furniture that has been well taken care of over the years but, has slight natural wear and discoloration on the doors, edges, or sides.

Glazing is the process of applying a translucent color to the surface, and then rubbing off the excess glaze.

In the following examples, several layers of Milk Paints, Glazes and Top Coats are combined in the tradition of old world craftsmen to create unique decorative finishes in any color palette. The process goes fast as water based finishes dry much more

quickly than oil based finishes. Choose from more designs available at our Creative Decorative Finishes Showroom or create your own.



1. Two coats of Autumn Haze Milk Paint sanded through
2. Water based topcoat to prevent color blending
3. Yellow Ochre Glaze
4. Final top coats



1. Two coats Sage Green
2. Water based topcoat to prevent color blending
3. Winter White Glaze
4. Final top coats



1. Two coats of Millstone Milk Paint sanded through
2. Water based topcoat to prevent color blending
3. Van Dyke Brown Glaze
4. Final top coats



1. Two coats of Brick Red Milk Paint
2. Water based topcoat to prevent color blending
3. One or two coats of Basil Milk Paint sanded through
4. Yellow Ochre Brown Glaze
5. Final top coats



1. Two coats of Brick Red Milk Paint
2. Water based topcoat to prevent color blending
3. Espresso Wood Stain
4. Final top coats

Application of General Finishes Milk Paints



Do I Need A Primer?

- Although Milk Paints can be applied directly onto bare wood, the use of primer is recommended for heavy grained wood such as Oak, Pine or Parawood, especially with light colors.
- Most dark Milk Paint colors do not need a primer. If you want a smoother finish, just add a third coat.
- Primer may also be put over previous stains and finishes. Sand glossy surfaces with #120 grit sandpaper before starting. Always test a small area first to make sure the primer and paint adhere to the original surface.

Hand Application of General Finishes Milk Paints

- Remove hardware from furniture. Taking a little extra time to remove backs of cabinets, drawer fronts etc., will make staining much easier.
Milk Paints may be intermixed to create additional colors. Snow White or Antique White will soften darker colors.
- If working in high temperatures or low humidity, Milk Paints may be thinned with 10-20% water or General Finishes Extender (3 to 6 oz. per quart) to improve open time for application.
- If working over existing paint or finish, always test a small area to make sure paint will adhere. Sand glossy surfaces with #120 grit sandpaper before proceeding.
- Make disposable paint trays by covering paper plates with aluminum foil.
- Test the color on the underside of the project. It is your responsibility to insure that the color is what you want.
- Always stir the contents well. Stirring distributes pigments that have settled to the bottom of the can.
- Paint on a wet, liberal coat with a wide foam brush, synthetic brush, or paint pad applicator. If too little paint is used, the surface can dry too quickly causing an uneven appearance.
- Let dry 2 to 4 hours before applying another coat.
- We recommend two to three coats of paint. If paint is not covering after 2 coats, you are not applying heavily enough.

- If using different colors of Milk Paint over one another (i.e.-when creating antique finishes) always apply a coat of Top Coat in between the colors to prevent color blending.
- Dry time is normally 2-4 hours under ideal conditions (70°and 70% humidity). Cooler temperatures or higher humidity will prolong dry time to 8-10 hours. Good ventilation, air movement and higher temperatures will accelerate dry time.
- Sanding between coats of any stain, paint or top coat is referred to as Buffing. Buff between each coat of Milk Paint with a superfine sanding sponge, #320 or #400 grit sandpaper.
- Milk Paint dries with a low luster sheen. Although it can be used as a one-can finish, we recommend one application of Water Based Top Coat for increased durability or to increase sheen. It is not necessary to buff after applying final Top Coat.
- If using Milk Paint in an outdoor application, do not Top Coat.



Use Milk Paint for all your outdoor furniture. It is not just an interior product! Classic interior/exterior paints for use with furniture, crafts, and cabinets. Milk Paint is a sturdy outdoor finish perfect for outdoor furniture. Uniquely engineered from the latest paint technology, Milk Paints can be used directly from the can to produce a high quality satin sheen. No mixing messy powders!

Applying General Finishes Glazes

Glaze Effects are translucent water based colors that may be used over any water based stain or paint to create beautiful decorative finishes such as distressing, antiquing, Strie', marble effects, shabby chic, burnishing, color washing, rag rolling and wood graining.



Snow White Glaze
over Antique White
Milk Paint



Yellow Ochre
Glaze
over Antique
White Milk Paint



Red Sienna
Glaze
over off Antique
White Milk Paint



Van Dyke Brown
Glaze
over off-white
Furniture Paint



Burnt Umber
Glaze over off-
white Furniture
Paint



Pitch Black Glaze
over off-white
Furniture Paint

- Always test the color on the underside of the project. It is your responsibility to insure that the color is what you want. Do not practice on your new furniture!
- Always stir the contents well. Stirring distributes pigments that have settled to the bottom of the can.
- Option: Before applying glaze you have the option of Top Coating first, which will help you control the amount of color and facilitate the spreading of glaze over the surface. The Top Coat layer is smoother and less absorbent, allowing the glaze to slide across the surface. If you want a rustic look with more color, skip the Top Coat layer and apply the glaze directly to the paint.
- Start with two base coats of Milk Paint following application instructions shown above.
- Let the final base coat dry 2-4 hours.

- Pour Glaze color into a paper plate covered with aluminum foil or painter's tray. Working one small section at a time, apply the Glaze liberally with a foam brush, synthetic brush or paint pad over entire section, keeping the surface wet with Glaze.
- Wipe off excess with absorbent wiping cloths or paper towels to achieve desired look. Do not use Tee-shirts.
- If you want to rework a section, simply rewet the surface with Glaze.
- Work quickly, so that the Glaze color does not dry before finishing a section. If necessary, mask off smaller sections around raised areas such as bead board and moldings. Glazes dry fairly quickly, so plan your sections before beginning.
- If working in high temperatures or low humidity, Glaze Effects may be thinned with 10-20% water or General Finishes Extender (3 to 6 oz. per quart) to improve open time for application.
- Let dry 2-4 hours. Apply water based Top Coat for additional durability or to increase sheen.

Application of General Finishes Water Based Top Coats

- If you are applying Water Based Top Coat over an oil based stain, allow the oil stain to dry a minimum of 48 hours under ideal conditions.
- Water based top Coats are milky white in the can, but will dry to a crystal clear finish. Stir contents well to insure that all the ingredients are mixed together.
- Apply with a foam brush, latex paint pad applicator, or by spraying.
- Apply Top Coats liberally using smooth even strokes working in the direction of the grain. Use enough material to provide a wet film. Do not over brush! Top Coats self level beautifully.
- Top Coats have "burn in" characteristics and may slightly lift some of the color during the application of the first coat (particularly red colors).
- On most projects three or four coats of Top Coat is just right. On projects receiving extra wear such as table and desk tops, additional coats will add more protection. Tip: use our High Performance Polyurethane for even more durability.

Dry Time of Top Coats

- Dry time is normally 2-4 hours under ideal conditions (70°and 70% humidity).
- Cooler temperatures or higher humidity will prolong dry time to 8-10 hours.
- Good ventilation, air movement and higher temperatures will accelerate dry time.

Buffing Top Coats

- It is important to buff in between each application of Top Coat for the smoothest possible finish.
- After Top Coat has dried, buff between each application with #320 or #400 grit sandpaper or superfine sanding sponge.
- Remove dust with a clean cloth.
- Do not buff prior to the first application Top Coat. It is not necessary to buff final Top Coat.

Warranty

General Finishes' products should be tested to your complete satisfaction before using. General Finishes will be responsible only for the cost of the product. General finishes will not be responsible for any other costs such as labor costs, damage costs, or replacement costs.

How to Spray Water Based Finishes

General Finishes water based products can be sprayed through compressed air, HVLP, airless or C.A.S. units. Surface Preparation: All surfaces should be clean and free from dirt and oil and sanded as per instructions above.

Spray Application of General Finishes Water Based Finishes

- Water Based PolyAcrylic is ready to spray from the container. If necessary in hot or dry climates, reduce 10 to 20% with water or General Finishes Extender to extend the open time.
- **Pre Sealing** : Soft woods such as Pine and Aspen absorb stain at an uneven rate and may respond better to staining if the wood has been pre-sealed. Natural stain can be applied to raw wood to condition the surface for uniform penetration of the stain. Pre-sealing will cause the final stain to be lighter. Always test your color on a hidden part of the furniture! Allow the Natural stain to dry 1 hour before applying your final stain color.
- If you are using a sprayer that has been used for oil based or lacquers, clean the unit thoroughly and rinse with warm water before using. Apply a thin coat first that will dry and harden faster. Sand this first coat down to a smooth base on which to build your finish coats. With water based finishes it is better to spray 2 thin coats rather than 1 heavy coat.
- **Spray Tips:** Recommended For Country Colors, Wood Stains and Top Coats. Fluid tip sizes should be as follows: Compressed air - .040, HVLP - .051, Airless - .009. Recommended Tips for Milk Paint. Compressed air - .050, HVLP - .072, Airless - .013. Air caps should be medium size. Contact your supplier to verify proper tip sizes for your specific equipment.
- Always strain material through a medium to fine mesh filter before spraying.
- Spray medium wet films at 3-5 wet ml thickness.
- **Reduction:** If spraying the product as a stain in order to allow the grain to show through, reduce 10 to 20% with water or General Finishes Extender. If spraying as a paint, do not reduce. For example, you may wish to spray Country Colors on for a painted look. In this instance, do not reduce. It is generally not necessary to reduce Milk Paints. but they also may be reduced 10 to 20% with water or GF Extender.
- Practice makes perfect! If you have never sprayed finishes before, take a large piece of cardboard and practice your technique first. Spray water on the cardboard to learn how the gun works. Check your fluid settings and adjust the controls to get comfortable with the spray angles and to develop your technique.
- Keep your gun at a 90° angle, 6-8" from the surface. On large flat areas, use wet, even patterns 6 to 8' wide. Over lap each pass 25% to conceal lines.
- For narrow surfaces, reduce the fan pattern to 2-3" to reduce overspray. Break your work into sections such as dresser top or drawer fronts. Spraying too large of an area can result in a textured grainy surface. A correctly sprayed finish should appear even and glossy. It is important to spray enough material to allow proper flow and leveling of the finish.

Trouble Shooting Guide for Spraying Water Based Finishes

- **Rough, dry surface.** This is called dry spray. You may have sprayed too lightly. Re-sand the finish with #320 paper and apply a heavier coat. Keep your gun at 6-8" from the surface.
- **Dimples in the finish.** This is called orange peel, caused by spraying in temperatures that are too cool. Cooler temperatures will adversely affect how the finish will level and harden. Water based finishes must be applied at temperatures above 65 F. If it is cold enough to wear a sweater it is too cold to apply a water based finish. The surface of the wood must also be warm. If you turn the heat on when you enter your shop in the morning, the air heats up quickly but your furniture will still be cold for some time. Check the surface to see if it is warm. Also, check the temperature of the finish. Warming cold finish by setting the can next to a heater or setting the container in some hot water for 5 minutes will improve the ease of application.
Note: Larger dimples are called "fish-eyes" or "craters". Cool temperatures can cause these, but the more likely source is contamination of the finish with either wax or silicone
- **Blush.** Blush, the term for a cloudy, milky appearance in the finish, has two causes. The most common reason is incompatible stain. For example, using a water based top coat over a heavy oil based stain. When the top coat is applied, the

oil in the stain seeps up through the finish and reacts with the acrylic causing a chemical blush. To prevent this, use a quick drying water based stain. If you choose to use oil based stain, seal the stain with a coat of shellac or lacquer sealer. This will provide a barrier between the oil and the acrylic. Proper drying time between the oil stain and finish coats is essential! The other cause for blushing is high humidity. Spraying water based finish in humidities of over 75% may cause blushing because moisture becomes trapped beneath the finish and cannot evaporate. You can prevent this condition by increasing air movement in the finishing area with a fan. All water needs to evaporate is sufficient air movement. You can also improve drying conditions by increasing the temperature in the drying area.

- **Surface is not leveling out.** In hot temperatures (85F – 100F) the finish may dry too fast. Use General Finishes Extender to open (increase) the dry time. Finishes that dry too fast may not completely level out before all the water evaporates from the finish.

Note: High humidity can cause the finishes to take longer to dry but will not harm the final finish.