

UPDATE - New Alternate Method for Mixing the Epoxy

The following is the best way to mix the epoxy since it blends much more easily than when stirred by hand.

It is extremely important that the product be measured accurately and mixed thoroughly. Do not simply pour the two components into a bucket, as that will result in an uneven mixture. Use clean graduated containers with lines on the side for measuring. Measure 1 part RESIN to 1 part HARDENER. Do NOT deviate from this ratio; epoxies are formulated to cure at a certain mixing proportion and any slight variances can cause the product to never fully cure. We recommend always pouring the HARDENER into your mixing container first, followed by the RESIN. This will help the two components mix more thoroughly. Always use a new container and stir stick for each gallon mixed. You can purchase 5 quart graduated containers at most home improvement centers. Make sure you find the 2 quart and 4 quart lines on the container. Sometimes they are embossed on the inside of the container.

We use the following mixer bit on a drill at LOW Speed for a total of 6 minutes. Do not mix at high speed and be sure to keep the bit submerged so as to keep out air bubbles. Be certain to time yourself as well. Complete one batch at a time, and do not pre-mix all the batches; they will cure too quickly in the small container. We recommend that you first mix the epoxy for 2 minutes with the drill bit, then stop and take a stir stick and scrap the sides and bottom of the container so that all parts are mixed well. Remove the stir stick and continue to mix with the drill bit for 4 minutes. Drill bits can be purchased on our website under Tools & Supplies or you can find them at most Home Depot Centers or Lowe's.



Workforce 1-Gallon Helix Paint Mixer

Model # HM1HD Store SKU # 811981

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Available for In-Store Pick Up

EPOXY WARNING!

1) TEMPERATURE

For best results the product should be used in room conditions between **75° F to 85° F**. If the temperature is below **70° F** the epoxy will fail. Use space heaters if necessary to sustain the temperature during the product curing stage (4 complete days).

2) MEASURING

It is extremely important that the product be measured accurately and mixed thoroughly. Do not simply pour the two components into a bucket as it will result in an uneven mixture. Clean graduated containers with lines on the side should be used for measuring. Measure 1 part RESIN to 1 part HARDENER. Do NOT vary this ratio, epoxies are formulated to cure at a certain mixing proportion and any slight variances can cause the product to never fully cure. We recommend always pouring the HARDENER into your mixing container first, followed by the RESIN. This will help the two components mix more thoroughly. Always use a new container and stir stick for each gallon mixed. You can purchase 5 quart graduated containers at most home improvement centers. Make sure you find the 2 quart and 4 quart lines on the container. Sometimes they are embossed on the inside of the container.

3) STIRRING AND POURING

Please read the complete instructions for stirring times. Always scrape the sides of the mixing container and stick during the mixing process. If any unmixed material remains on the side of the container and falls onto your surface while pouring it will leave an uncured wet or sticky spot. It is natural to want to use up every last drop you have mixed. However when you pour onto the surface you should just dump it out and set the container down. If you use a stick or a brush to try and remove every drop you will very likely end up with sticky spots.

IMPORTANT - PLEASE READ BEFORE UNROLLING COPPER

Make sure to wear rubber gloves when handling the copper to avoid getting fingerprints on the copper as they will not come off.

Please note that some copper finishes will look slightly different until a lacquer coating is applied. A one-time coat of lacquer is recommended to protect the copper for many years. Our COPPERLAC lacquer is a semi-gloss that works well on the copper sheets. Most store brand lacquers will work as long as they are not water-based (test first on a small piece).

We Recommend:

-One to two coats of lacquer for non-surface areas such as cabinets, furniture, backsplash...

-Two to three coats for surface areas such as countertops, table tops, vanities...

* If you are using our self-level epoxy, you will only apply one coat of lacquer as a sealant since the epoxy will be used for protection.

Basic Instructions Using 36 Gauge Copper Sheets

Make sure that your work surface is large enough for the sheet of copper as you unroll it from the tube to avoid dents and wrinkles. If you do get some dents or wrinkles, that's no problem; just place a piece of vinyl over the copper and use a laminate roller to easily roll them out. We recommend that you use a new pair of scissors or a brand new utility knife and a straight edge to cut the copper. Make sure to wipe the surface of the copper lightly with a dry cloth to remove any dust.

Adhere the copper to your surface using standard contact cement. Make sure you purchase original formula contact cement. The Gel formula and the newer water based environmentally safe formulas do not work (we use DAP/Weldwood Original Formula Contact Cement). Gently scuff-sand the back of the copper sheet with 80 or 120 grit sandpaper. Make sure to scuff all parts that are to be bonded. Apply contact cement to the face side of the substrate and the back side of the copper sheet. Follow the contact cement manufacturer instructions in regard to set times. Once the contact cement is ready, carefully place the copper sheet onto the substrate and use the laminate roller to roll out the copper sheet from edge to edge. The key to a good bond is rolling every square inch of surface area. Be sure to apply firm downward pressure on the roller. Your contact cement brand may say on the can, "DO NOT USE ON COPPER;" however, we have been using this for nearly 20 years without a problem, so just disregard that as it only applies to copper plumbing.

Basic Instructions Using 24 Gauge Copper Sheets

Wipe the surface of the copper lightly with a dry cloth to remove any dust. Use a pair of hand shears to cut the copper. We use Malco 14 inch aluminum snips to achieve a straight cut. These can be purchased on Amazon.com. Adhere the copper to your surface using contact cement or Liquid Nails.

Basic Instructions For Bar Tops, Countertops, TableTops, and Backsplash.

1) Preparation

{**IMPORTANT!!** Make sure to wear rubber gloves when handling the copper to avoid getting fingerprints on the copper as they will not come off.}

Make sure that your work surface is large enough for the sheet of copper as you unroll it from the tube to avoid dents and wrinkles. If you do get some dents or wrinkles, that's no problem; just place a piece of vinyl over the copper and use a laminate roller to easily roll them out. We recommend that you use a new pair of scissors or a brand new utility knife and square to cut the copper. Make sure to wipe the surface of the copper lightly with a dry cloth to remove any dust.

2) Adhering Copper Sheet

Preferred method:

Adhere the copper to your surface using standard contact cement. Make sure you purchase Original Formula contact cement. The the Gel formula and the newer water based environmentally safe formulas do not work (we use Dap/Weldwood Original Formula Contact Cement). Gently scuff-sand the back of the copper sheet with 80 or 120 grit sandpaper. Make sure to scuff all parts that are to be bonded. Apply contact cement to the face side of the substrate and the back side of the copper sheet. Follow the contact cement manufacturer instructions in regard to set times. Once the contact cement is ready, carefully place the copper sheet onto the substrate and use the laminate roller to roll out the copper sheet from edge to edge. The key to a good bond is rolling every square inch of surface area. Be sure to apply firm downward pressure on the roller. Your contact cement brand may say on the can, "DO NOT USE ON COPPER"; however, we have been using this for nearly 20 years without a problem, so just disregard that as it only applies to copper plumbing.

Special Note:

Whenever possible, it is best to wrap the copper around your substrate to give it maximum adhesion. We recommend waiting 24 hours after adhering the copper to the substrate before applying the epoxy to ensure you have a solid adhesion.

3) Applying Lacquer Seal Coat

Spray a base coat of [COPPERLAC](#) lacquer to create a seal on the patina copper. Our lacquer is specifically made for patina copper surface. The lacquer allows the epoxy to adhere to it much better and produces an amazing finish that is truly something to behold.

4) Epoxy Self Leveling Finish (brief overview)

After your lacquer base coat is dry (3-4 hours), the next step is to pour a self-leveling epoxy coat to finish the project. Make sure you use a graduated container to measure out the epoxy since some of it will stick to the container wall giving you an uneven mixture of components. It is very important that you stand by the project for at least 30 minutes after pouring in order to pop any air bubbles that suddenly appear. Use heat gun and keep it 16-18 inches away from surface.

For best results the product should be used in room conditions between **75° F to 85° F**. If the epoxy was stored in lower temperatures such as outdoors or during shipping, you will first need to bring it indoors and warm up to room temperature before using. The room you are working in should be clean, dry, dust and insect-free. Settling dust can often cause imperfections on the surface of the epoxy as it is curing.

Bar and Table Top Epoxy is a 100% solids, high-build, clear polymer coating that is commonly seen on bar and table tops. Each kit contains a bottle of resin and a bottle of hardener which are mixed together at a 1 to 1 ratio by volume. This product cures to a clear, glass-like finish that resists scratching and will not distort with age. Items coated with it will become permanently preserved and protected for your enjoyment throughout a lifetime. This product will resist yellowing and is water resistant. However, it does not provide 100% UV protection. This should be carefully considered before applying in an outdoor, high UV exposure setting. The epoxy will not exhibit any blushing or sweat-out even under high humidity conditions.

Generally one flood coat is applied for most table and bar coatings unless you are trying to cover bottle caps or other items you have placed on the surface which will require multiple coats to cover. You must wait between 4 to 10 hours before applying subsequent flood coats.

What You Need:

- Safety Gloves - Epoxy is very sticky.
- Graduated Mixing Cups - Accurate measurement is extremely important to achieve optimum cured properties.
- Clear Stir Sticks For Each Batch - Dirty sticks can cause contamination of the epoxy.
- Rubber Squeegees - These spreaders will not leave air bubbles behind as brushes can.
- Brushes - Foam or nylon brushes which do not lose bristles
- Solvent - Denatured alcohol or acetone for cleanup and wiping
- Propane Torch, Heat Gun or Hair Drier - Used by sweeping the heat or flame across the surface of the uncured epoxy to release trapped air bubbles

Beginners Notes:

This product will produce professional results when applied correctly. Take your time to review some of these common problems that first time users can encounter.

1. To avoid most of these common problems, you should always do a trial run with the product to insure proper understanding of how to mix and apply.
2. Always make sure that your mixing container is clean and your measuring device is accurate. This product requires that you mix at a 1 to 1 ratio by volume. Any variances from this ratio will cause the epoxy to never completely cure.
3. THOROUGH mixing is the most important part of this procedure. Even if you have experience with other types of resins, it is very easy to underestimate the amount of mixing this product requires. Depending on the quantity being mixed, it can take anywhere from 3 to 7 minutes of continuous mixing without whipping. During mixing the product will turn cloudy white and you must continue to mix until all signs of haziness and white streaks in the mixture have turned back to a completely transparent color.
4. Do not whip this product while mixing. Excessive whipping will add a tremendous amount of air bubbles which are difficult to remove.
5. Always scrape the sides of the mixing container and stick during the mixing process. If any unmixed material remains on the side of the container and falls onto your surface while pouring it will leave an uncured wet or sticky spot.
6. While pouring the epoxy onto the surface, NEVER scrape or brush the sides or bottom of the container you just mixed in to remove every last drop because no matter how thoroughly you may have mixed, there will always be an unmixed portion stuck which can be dislodged and will leave a wet or sticky spot.

- Drop Cloths - Should be used to avoid spills on flooring surfaces

Project Preparation:

Safety:

Gloves should always be worn when working with epoxy. This product is nontoxic and safe for indoor use because it has virtually no odor. Product may be harmful to skin so proper eye and skin protection should be worn at all times.

Surface Preparation:

For most applications the wood surface on the bar or table should be sanded first and cleaned and dust-free. It is also important that any prior stains or finishes be completely dry before beginning. Any types of moisture, oils, greases or uncured finishes can potentially cause fisheyes or product curing problems. If you are applying the epoxy to a copper surface it is good to wipe the surface with a DRY cotton cloth to remove any dust. Do not use any chemicals or liquids to clean the copper. This will ruin the patina finish.

*****IMPORTANT*****

If you are pouring this product directly on a wood surface instead of a copper surface, the product should be applied in two stages. The first stage is referred to as the seal coat. The seal coat is brushed on in a thin layer and is used to seal any pores in the wood surface and prevent air bubbles from forming in the following flood coats. This stage is followed by the flood coat, which will flow and self level, clean brushes or squeegees can be used to help spread the epoxy. Flood coat should be poured approximately 4-10 hours after the seal coat (6 hours is optimal). Do not exceed 10 hours. Flood coats are applied in 1/8" layers at a time, as many as desired can be applied, however one to three coats is average for most table or bar coatings. If you are using our copper sheets for your surface, simply ignore this step as you will be applying a lacquer base coat instead since your wood surface will be covered by the copper.

1. Coverage:

In order to determine how much to mix you must know your square footage (length x width). When working on large projects it is not necessary to mix the entire amount all at once due to the difficulty in mixing more than one gallon at one time. Mixing multiple batches for one coat is acceptable when they are poured right after each other. Large projects generally require more than one person in order to facilitate proper mixing and pouring within the allotted amount of working time.

For Large Projects: Use formula of 16 Sq Feet per gallon (1/2gal Resin + 1/2gal Hardener)

2. Measuring:

It is extremely important that the product be measured accurately and mixed thoroughly. Clean graduated cups or tubs should be used for measuring. Measure 1 part RESIN to 1 part HARDENER. Do NOT vary this ratio, epoxies are formulated to cure at a certain mixing proportion and any variances can cause the product to never fully cure. We recommend always pouring the HARDENER into your mixing container first, followed by the RESIN. This will help the two components mix more thoroughly.

3. Mixing:

- Combine the two components together into a larger container. The mixing container should be about 30% bigger than the amount of product you are mixing so that thorough mixing can be accomplished without spillage over the container lip.

- Mixing of the product should be done by hand with a clean stir stick. The more product you are mixing the longer it will take to achieve a complete mixture. Generally one gallon of mixture takes approx. 4-5 minutes of mixing. Timing this with a watch is a good idea.

- The process of mixing is long and will make your wrist tired, but it is the most important part of the project. As you begin to mix, the resins will almost immediately turn a cloudy white color. This represents

the two separate components starting to blend. As you continue to mix the level of whiteness will begin to turn more transparent with the end result being a completely transparent mixture in which you can see perfectly to the bottom of the mixing container. Mixing must continue until all signs of cloudiness and hazy lines have completely disappeared. Be certain that you scrape the sides of the bucket and the stick while you are mixing. It may be helpful to use a bright light next to the container to insure the mixture is combined thoroughly. After you are confident there are no more thin hazy lines remaining in your mix it is time to pour.

[Tip 1: If you don't want to take any chances of under-mixing you can wait until the mixing container starts to become slightly warm to the touch which usually assures a long enough mix. However, this also reduces your working time especially when mixing 1 gallon.]

[Tip 2: Pour quickly after complete mixing. Leaving large amounts of mixed material in your bucket will cause an accelerated chemical reaction due to the heat being generated in such a small area.]

4. Pouring.

WARNING: When pouring the resins onto the surface NEVER scrape or brush out from the container you were just mixing from. Just dump the resins out and leave the remaining material in the container.

Pouring a flood coat: Each flood coat self-levels approximately 1/8" thick. If depths thicker than 1/8" are desired multiple coats are necessary. You must, however, wait at least 4 hours between flood coats but not longer than 10 hours (6 hours is optimal). The best way to apply the flood coat is to start on one end and pour the resin the entire length of the surface, zigzagging as you go. After you are finished pouring, set the container down. Do NOT try to scrape anything else out of the bucket. Because you are pouring about three times the amount of product you did with the seal coat the material will immediately start to flow out. However, you will still want to use a rubber squeegee or foam brush to help guide the material around. The less you use the brush the better. Dragging too hard on the brush will put hundreds of air bubbles into the surface which are impossible to fully remove. Once you have sufficiently covered the entire surface you will then begin the process of popping air bubbles. The best tool for removing bubbles is a small propane torch. By holding the heat source approximately 6 to 10 inches away from the surface and quickly sweeping across you will immediately see the bubbles start to pop. Other tools that can be used to pop the bubbles are a heat gun or a hair drier. However, both of these tools move air around which increases the risk of dust settling in the coating. It is best to keep 16-18 inches away from surface if using either of these tools. It is very important that you stand by the project for at least 30 minutes after pouring in order to pop any air bubbles that suddenly appear.

Other flood coat issues:

-Bar rails and edges: the flood coat can be allowed to run over the sides which will create a coating on the vertical edges. These edges will not create as thick a coating as flat surfaces so you must do your best with a brush to keep the material even.

-Underneath edge: Drips will form underneath the bar-rail or edge, these drips can be sanded off once the epoxy has cured. If you catch the epoxy at just the right moment in the curing process a razor knife can be used to cut the drips off.

5. Re-Coating:

When re-coating within a 4 to 10 hour window no surface preparation is needed. The layers will bond together as one. If you allow the previous layer to fully dry, light sanding is necessary with some 220 or 320 grit sandpaper. After sanding, you should wipe down the surface with a solvent such as denatured alcohol (acetone can also be used). Do NOT use paint thinner, aka mineral spirits. The wipe down process with the solvent should be done with a clean rag that will not leave any lint on the surface. Continue cleaning until all sanding dust has been completely removed. You are now ready to re-coat. Don't worry about the sanding scratches. The next pour will fill in the scratches and it will look like glass again.

6. Curing:

After applying your final coat, the product should be kept in as clean and dust-free an environment as possible. At 80° F degrees, the product takes approximately 12-14 hours to dry to the touch. However, the product should not be put into any type of use for at least 3-4 days which will allow it to achieve sufficient hardness to resist scratching. At temperatures below 80 F, the product will take longer to cure.

Advanced Techniques

After becoming familiar with the proper application procedures, these techniques can be attempted.

1. Thick Build-Ups: This product can be used to build up unlimited depths. Each flood coat should not exceed 3/16". Attempting to pour thicker can cause the epoxy to generate excessive heat which in turn will cause more air bubbles, possibly cracking and shrinkage. It is advisable to wait at least 4 hours between pours to allow sufficient curing and cooling (6 hours is optimal). Do not go past 10 hours.

While this product is considered clear by epoxy standards, it does have a very slight amber tone. This color is virtually unnoticeable in depths up to 1/2" thick. The color of the epoxy can become noticeable in greater depths especially over light colored surfaces.

2. Damming The Edges: We generally recommend allowing the epoxy to run over the edges of your surface as it will self level at approximately 1/8" at a time. If your application calls for a temporary dam to be constructed it must be done with great care to insure it can be removed after the epoxy is cured.

Ideally a smooth, soft or flexible plastic strip should be used because the epoxy will not stick to it.

Alternatively, wooden trim can be used but only if it is first covered with a 2 to 4 mil plastic sheeting. Lining the wood trim with the plastic and tacking it to the edge should prevent the epoxy from running in between the edge and the plastic. Testing on a small mock up should be done to insure no leakage or problems will occur with your damming technique.

Troubleshooting

1. Entire Surface Is Soft, Wet or Sticky after 48 hours:

- Product was under-mixed. Unfortunately, as much as we stress this as the most important part of the project, it can still occur and is the most common cause of this problem. If you do not mix long enough or do not scrape the sides and bottom of the container while mixing you will find under-cured epoxy.

Please reread Section 3 of our instructions.

-Product was inaccurately measured. You must follow the strict 1 to 1 ratio by volume. Do not guess or eyeball these measurements. Just dumping the product from their original containers is not a proper measurement. The product MUST be measured with fairly precise accuracy using a graduated tub.

Solutions:

1. If the surface is hard but only slightly tacky, a new flood coat can be applied over the entire surface and the new product will dry hard assuming mixing procedures have been properly followed.

2. If the surface is wet and soft, then as much of the material as possible must be removed with a paint scraper or knife. Use denatured alcohol or acetone when necessary to help remove the wet epoxy. Remix and apply a new flood coat. The new coat will cover up almost all effects of the previous error. Be certain to follow the proper mixing procedures.

2. Sticky or Soft Spots:

The most common cause of this is scraping or brushing from the side or bottom of the mixing container while pouring. It is natural to want to use up every last drop you have mixed. However when you pour onto the surface you should just dump it out and set the container down. If you use a stick or a brush to try and remove every drop you will very likely end up with sticky spots.

Solutions:

1. If the sticky spots are hard but only have a slight tackiness on the surface then you can re-pour over the entire surface and the new product will dry hard assuming correct pour procedures have been followed.

2. If these spots are soft and wet you will need to scrape or cut out as much of the soft material as possible using a paint scraper or knife. Use denatured alcohol or acetone when necessary to help remove the wet epoxy. If you are left with deep depressions as a result, your first re-coat should be used just to fill in the areas in which you scraped. After this pour has set for at least 4 hours a full re-coat can be completed. This will hide the imperfections and leave you with a hard glass-like surface.

3. Air Bubbles:

There are many types and causes for excessive air bubbles. We have listed a few below.

1. Air bubbles across the entire surface.

a. No bubble removal technique was used as shown in Section 4 of our instructions.

b. Improperly applied or no seal coat was used.

c. Wood surface below was extremely porous and seal coat was not thick enough to cover. (Very common in aged wood).

d. Product was whipped or stirred excessively putting so many bubbles in the mix that they could not be removed with the flame/heat technique. Very common for users employing a drill mixer in their mixing technique.

e. Dragging too hard with a brush on the epoxy while spreading. These tiny bubbles sometimes appear in cloudy streaks where the brushing technique was used. Consider using a rubber squeegee instead for spreading.

2. Air bubbles in just one spot.

a. Knot, cracks or holes in wood were not properly sealed and air bubbles continually rise throughout curing.

b. Missed a spot during the seal coat.

Solution: Usually the bubbles are not noticeable enough to warrant any further work. If, however, you desire, you may sand or grind the surface to remove as much of the air bubbles as possible and re-coat the entire surface.

4. Surface Cures Uneven with Ripples or Waves:

a. Wooden surface had too much warping or imperfections and one coat of epoxy was not enough to cover the imperfections.

b. Applying too thin a flood coat. This product needs to be applied in full 1/8" flood coats in order to properly self level.

c. Applying too much heat during your bubble removal techniques will cause a ripple effect. The heat or

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torch should be swept across the surface rapidly without holding it in one place.

Solution: Applying another flood coat in sufficient thickness should hide virtually all signs of the waves or ripples from the previous coat.

Maintenance

Never use abrasives, windex, or soft scrub!!! Soap and Water Does the Trick

To protect the epoxy finish, avoid using abrasive cleaners. No coarse, acidic, or alcohol-based cleaners should be used. **Clean with warm soapy water and a soft cloth.**