

Polymer Composites Incorporated

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Application of Epoxy Resin Coatings For Tabletop Countertop, Plaques Decorative And Protective Coatings

MAX CLR A/B LOW VISCOSITY HIGH IMPACT

MAX CLR-HP A/B HIGH SURFACE HARDNESS AND HEAT

MAX CLR-TC A/B TOP COAT FOR BUBBLE & SURFACE BLEMISH SURFACE

MAX CLR or Clear Liquid Resin is our line of crystal clear and color stability epoxy based resin systems suitable for clear coatings casting and imbedding applications. It comes in several versions specially formulated for different levels of engineered cured performance and mechanical properties conducive to the application techniques and the desired performance.

All versions can be utilized as a clear transparent protective coating for tabletops bar tops, plaques, picture and memorabilia imbedding applications.

MAX CLR A/B is the thinnest or lowest viscosity providing higher flexibility, longer working time and impact resistance suitable for thick casting and imbedding applications.

MAX CLR-HP A/B is the High Performance Version offering improve surface hardness, heat stability and the highest mechanical properties due to its higher functionality; it is also the thickest or viscous of the MAX CLR versions and is mostly used for commercial restaurant bar tops an table top coatings.

MAX CLR-TC A/B version is specially formulated as a topcoat demonstrating faster air bubble release and resistant to the forming of surface blemishes such as surface craters, and "orange-peeling" and surface irregularity due to uneven substrate surface. MAX CLR-TC A/B is formulated specifically as a top coat version demonstrating the highest cured gloss, surface smoothness and blemish-free top coat quality.

The use of an epoxy resin to apply a finish unto a counter top or a bar top is an inexpensive and simple process that can yield very functional and decorative results. Upon cure, the resin cures to a clear high gloss that creates and provides a protective barrier against stains and chemical attack that can ruin its aesthetic quality. Granite, marble and concrete and bare wood counter tops are porous substrates that stain very easily and removal of the stain is virtually impossible. The MAX CLR resin system is practically stain-proof and prevents stains from permanently impregnating in the porosity of an leave a permanent stain.



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The MAX CLR resin system is specially engineered to produce a functional yet aesthetic coating that demonstrates excellent color stability toughness and durability. Upon cure it yields a very high gloss finish that is resistant to common commercial and household cleaning chemicals such as saponified detergents, diluted ammonia solutions and surface degreasers.

MAX CLR is a commercially proven protective coating system that prevents permanent stains from absorbing through the porosity of most countertop substrate. Clean up's can be as simple as wiping it with a clean rag and will not leave any stains or mark. MAX CLR is safe to use on virtually any surface as high build coating or as an imbedding resin system.

MAX CLR A/B can be used on wood, glass, laminated tops, marble, granite, concrete, metal and other natural and artificial surfaces. MAX CLR A/B will bond to these substrates and produce a high gloss clear chemical and stain resistant coating.

Here are fabricating techniques that are pertinent in casting or applying high build coatings for bartops tabletops and similar applications.

Tabletop and Countertops

There are some considerations that need to be kept in mind when using any epoxy resins as a countertop coating or as an imbedding resin and similar projects.

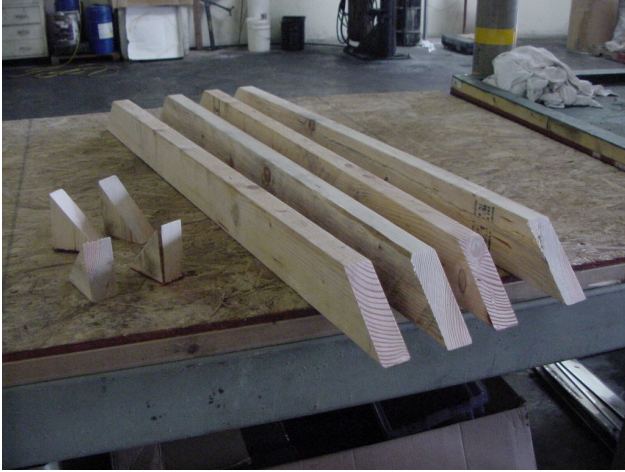
- First, one must consider the construction of the countertop or bartop itself. When a polymer coating is applied on one side of a piece of wood or any anisotropic substrate (any material whose mechanical property is directionally dependent) to form a clear continuous film, the dimensional shrinkage that occurs when a liquid polymer converts to a solid plastic, will impose enough stress to cause it to curl and contort like a potato chip.
- Although the dimensional shrinkage of MAX CLR is well below 0.5%, extrapolated over the surface area, it will produce enough force to distort the most rigid wood species and rigid veneers. Note the curl on this 20 mil wood veneer coated with 2 mils of epoxy coating.
- The base countertop should be made from a single continuous piece of wood to eliminate any seams and joints. If two independent pieces are to be used and the coating will bridge the seam, the bond between the two pieces must be bonded by a structural adhesive and then supported by a framing on the backside. This will keep the seams from separating and prevent the coating from splitting or cracking over time.
- Another consideration is the weight of resin itself that is going to be added to the overall weight of counter or tabletop. The structure that will be supporting the counter top (legs and cross brace) itself must be able to bear the load of the countertop and the added weight of the resin.
- A common 100% solids (no solvent or thinner) mixed epoxy resin weighs approximately 9.1 pounds per gallon and it will cover 160 square feet at 0.010 inch thick coating (thickness of 3 sheets of bond paper). The added coating weight must be considered during the construction of the tabletop.
- If constructing a new countertop or bartop, choose the best grade plywood and the thickest, 3/8 inch for coating greater than 1/4 inch. For recoating projects, reinforce the underside by using a structural epoxy adhesive Such as our [MAX BOND THIXOTROPIC.ADHESIVE](#).
- Do not use screws or any mechanical fastener on the surface of the counter top as it will leave a distortion or a noticeable dimple on the surface once the coating has cured.



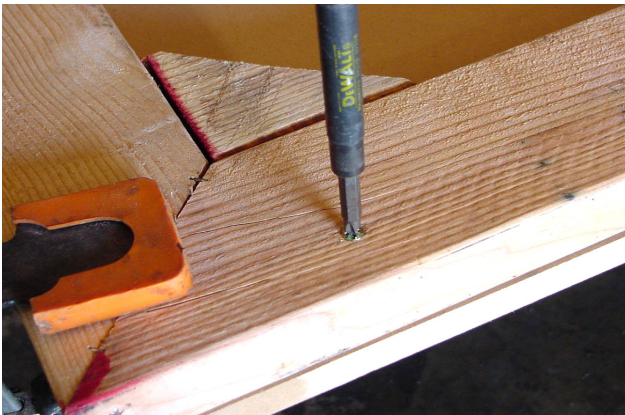
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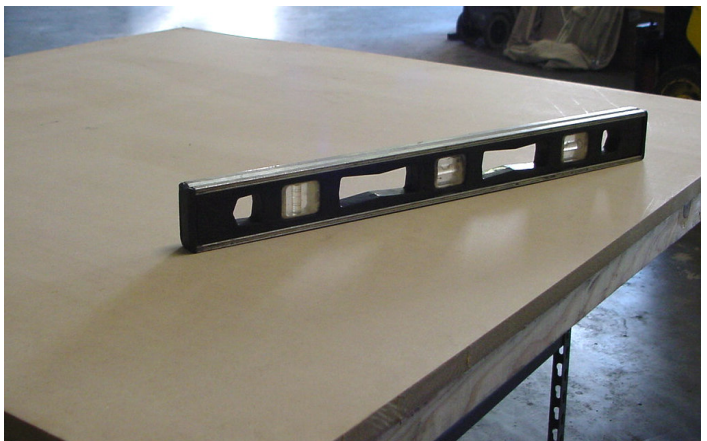
Table or Counter Top Construction



- For large coating applications such as this tabletop, some construction aspects must be considered.
- Here a tabletop is constructed using 3/8-inch thick MDF particleboard with a 2"x4" framing for support.
- The framing is bonded together using carpenters glue and screw fasteners.
- Use nails or screws to fasten the framing to the base from the bottom
- Make sure it does not penetrate the surface of the tabletop. This will eliminate any divot marks or indentations appear on the surface over time.



- Use a leveling tool to plane and level the tabletop.
- After the framing has been secured to the base, place the tabletop on secure surface and insure its stability and cleanliness of the environment



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Working Environment

The environment should be clean dust free and well lit to help reduce any dust contamination and detect any surface defects effectively. The ideal temperature of the environment should be between 70°F to 85°F. Condition the table or counter top, resin and curing agent at this temperature overnight to insure good flow and wet out. A constant ambient temperature of 75°F will also provide an adequate curing environment for the MAX CLR.

Keep the area dust free by sanding the tabletop in a different area from the curing area and minimize any strong drafts that may affect the surface smoothness.

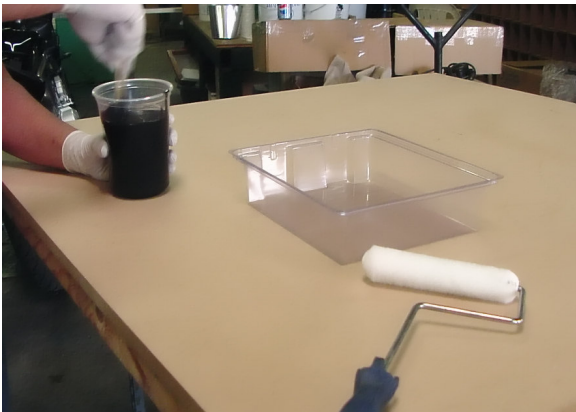
Sealing Surface Porosity



The tabletop is now ready to be sealed. At this point background color and other design aspects are considered. If the bartop has a natural wood grain intended as the revealed finish, use the MAX CLR A/B as the clear resin sealer.

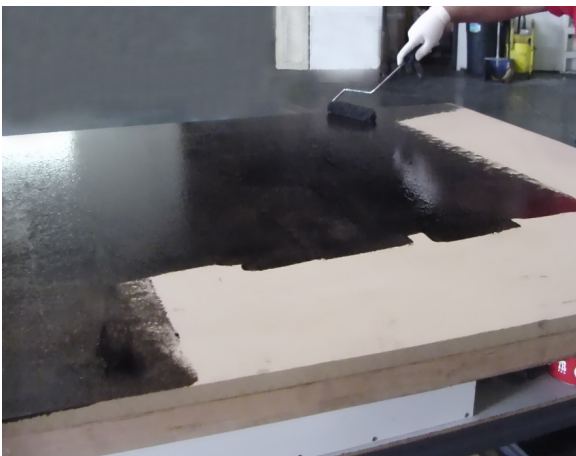
- If a solid color is desired such as black, for example, the MAX CLR A/B is pigmented with colorants suitable for epoxy such as the MAX EPOXY COLORANT or an equivalent product.
- This will serve as a sanding sealer for the bare wood and also create a deep color background.
- The bare wood will absorb the sanding sealer and may require several applications so prepare enough colored coating for at least 2 to 3 coats.

MAX CLR A/B SANDING AND POROSITY SEALER



MAX CLR A/B makes an excellent sanding sealer for wood. The low viscosity allows it to penetrate deep into the wood giving stability and protection against moisture. For coating non porous substrates, use MAX CLR A/B as is and apply using a roller coater or brush. For pigmented or colored backgrounds, use MAX Epoxy Colorant to pigment the clear resin using this formula:

MAX CLR PART A	97 parts
MAX BLACK COLORANT	3 parts
MAX CLR PART B	50 parts



Premix the pigment paste and the MAX CLR A/B resin in a clean container using a spatula or mixer. Make enough of the pigmented sealer to cover the entire surface with 2 heavy coats. Divide the mixture into two batches and add the proper amount of curing agent into the first batch and carefully mix for about 2 minutes. Transfer the mixed resin into another container and mix for another minute. This mixing procedure will insure that the resin and curing agent is mixed thoroughly. Using a short hair nap roller, apply a heavy coat of the tinted MAX CLR epoxy resin and allow the substrate to absorb the coating for about 20 minutes. Apply another heavy coat until a uniform opaque color is achieved.

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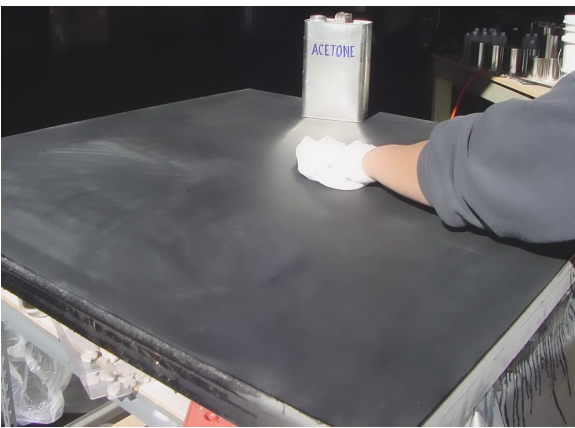
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The coated surface may look contaminated and rough looking at spots, which is normal when applied on bare wood. The surface blemish is caused by wood fibers that has erected vertically due to the surface wetting process called 'grain raise', which is normal. The raised grain or wood fiber will set in place when the epoxy sealer cures and then is sanded smooth.

Allow the coated tabletop to cure overnight or until tack free to the touch (8 hours). If thin spots occur due to over sanding or wood absorption, repeat the process until an opaque background is achieved. Allow the coating to cure tack free before proceeding.



After the sealer coating has cured to the touch, move the tabletop to another area and sand the entire surface flat with a palm sander or a block sander using 180-grit sandpaper. Apply light pressure making sure not to sand through the coating. Using high-pressure air blast, blow off the all dust residue and clean the surface with a damp rag and allow to dry.

Replace the tabletop back into the clean area and wipe it down once more with a soft rag dampened with acetone or MEK solvent. The tabletop is now ready for the gloss coat. It is also at this point that any embed items are securely mounted on the tabletop.

For plaques and small picture framing projects use ½ inch thick MDF or particleboard as the base substrate. After the baseboard has been sealed and sanded, measure the photograph and position it so that it is well centered unto the baseboard and mark the edges with a pencil for reference.

General Guidelines For Picture Imbedding

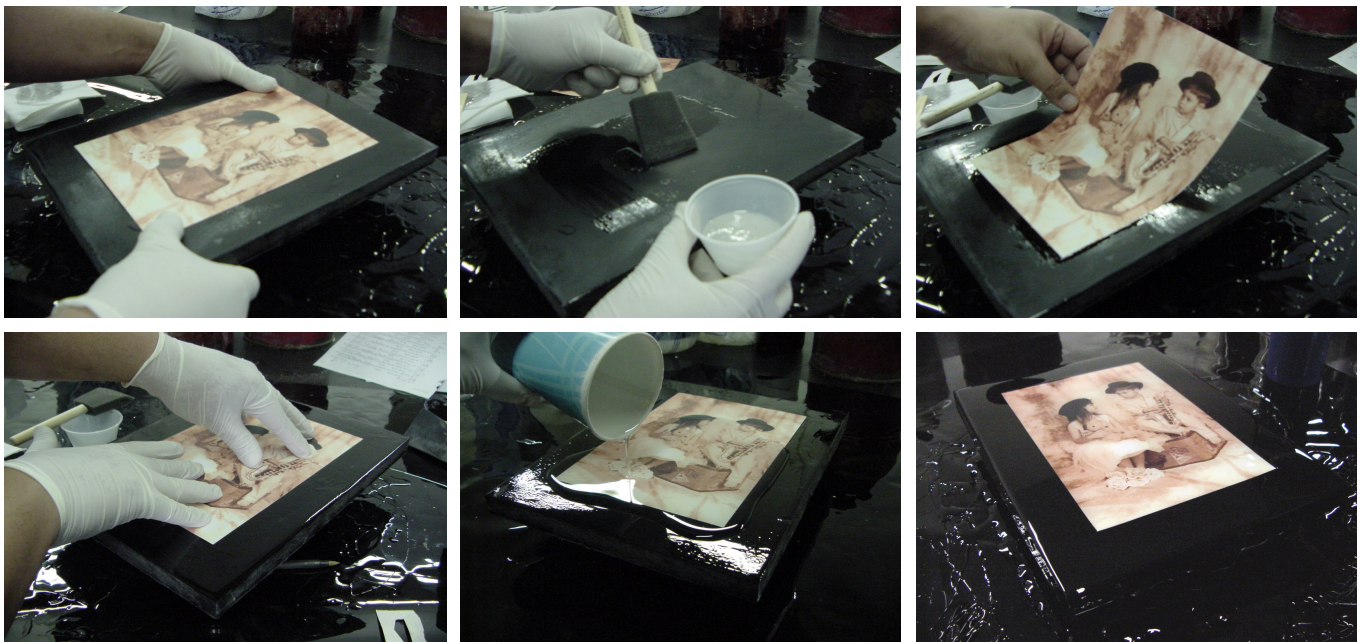
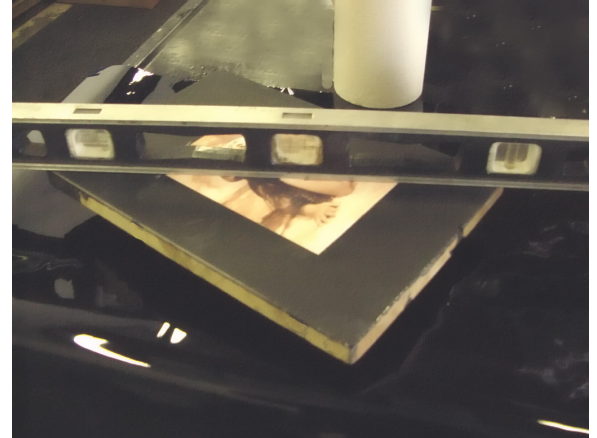
The preparation procedure also can be used on large tabletop and countertop applications. Here a photograph is going to be resin framed to a ½ inch baseboard 9 inches by 12 inches wide. At this dimension the baseboard can be used without framing.



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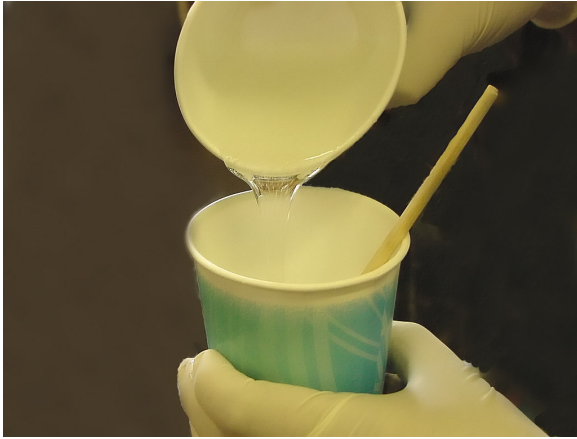
- Flat item such as photographs, cards, chips and other small smooth objects are the best to use. Embedding a picture of the items is much easier and will use less epoxy resin than embedding item itself.
- Use quality photographic paper or papers that will not soak up resin and become translucent. Avoid using uncoated inkjet printed images since the colors will run and bleed out into the resin.
- Printing the image using a color laser printer on heavy glossy paper provides the best results.
- Do not use or pretest ink jet printed photographs to insure that the ink will not bleed and run.
- Stickers and decals also makes excellent embeds. Mount the picture using good quality adhesive such as clear paper glue or mix a small batch of the MAX CLR A/B and use it as an adhesive.
- Laminate the picture unto the tabletop surface and squeeze out and remove all entrapped air bubbles between the picture and the base substrate. Allow the adhesive to fully cure before applying the clear coating. If using a water-based carpenter's glue allow at least 24 hours to insure complete evaporation of the water.
- Porous or rough surface items must be first sealed to prevent air bubbles from forming during the embedding process.
- Mix a small amount of the MAX CLR A/B and use it to seal the items and allow to fully cure before embedding. Arrange and secure the items using the MAX CLR A/B as an adhesive for mounting.
- Laminate the picture unto the presealed substrate and insure that there is no entrapped air bubble in between the picture the substrate.



When the adhesive has set, place the plaque or tabletop on a flat surface and level with a leveling tool. Use a small block about an inch tall and place it underneath the tabletop so it is elevated from the work surface. This will prevent the plaque from bonding to the work surface and makes cleaning the edge off much easier

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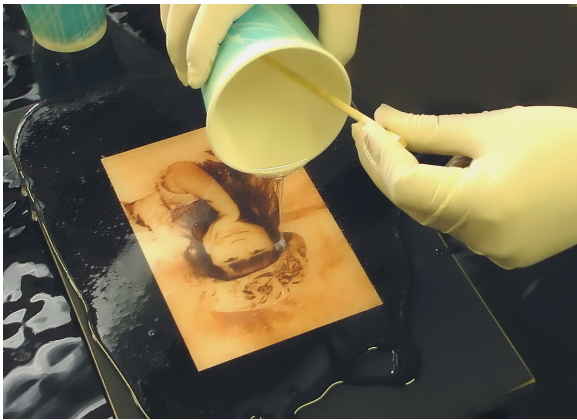
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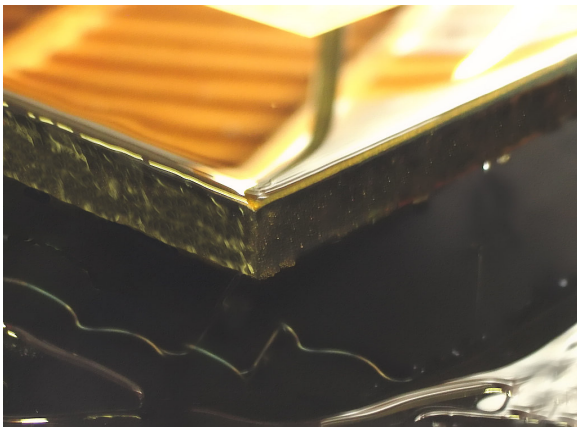
Make sure that the surface and general working area is clean and relatively dust free as well as strong wind gust or drafts. For best results, maintain the ambient room temperature between 70°F to 80°F.

Determine the amount of resin needed as shown in the calculation procedure above. The MAX CLR A/B will hold a 1/8-inch thick meniscus when poured on to a flat and level surface.

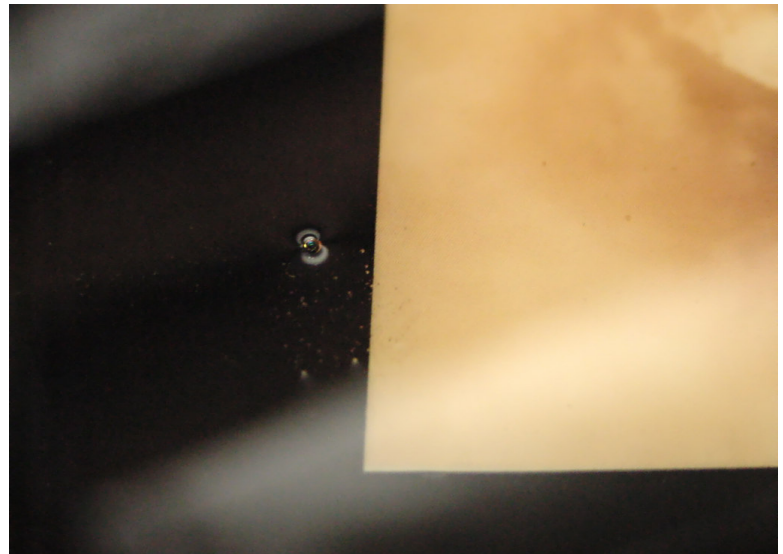
Use 3/16 inch as the coating thickness, which will allow enough resin for flow out. Gently mix the resin in a clean container for about 2 minutes and then transfer it into another clean container and mix for another minute.



This mixing procedure will insure that the resin and curing agent is mixed thoroughly and avoid tacky spots. Starting from the center, pour the mixed resin unto the plaque and allow the resin to spread evenly. Any mixed air bubbles will slowly rise to the surface and pop. Use a hair dryer or a hot air gun and gently pass it over the coated surface to remove any stubborn air bubbles. By allowing the resin to spread by itself, it will naturally form a coating thickness of about 1/8 inch. If the item to imbedded is thicker than 1/8 of an inch, several applications may be required.



Small air bubbles will usually appear from the edges of the photograph imbedded item. Watch for these bubbles and use the tip of a toothpick or a hot air gun to pop any bubbles.



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The applied MAX CLR A/B will remain workable for about 60 minutes so guard the surface from any settling dust and debris.

For thicker coats allow the first layer to cure for approximately 6 hours and then repeat the coating process. Do not move the plaque or tabletop as it has equalized to water level plane. No sanding is required between subsequent coats when it is applied within 24 hours. As long as the previous application has cured to a hard finish and the surface temperature is below 80°F, subsequent coats can be applied and will cure into a unitized layer.

The MAX CLR A/B will dry to the touch in 6 hours and will require another 24 hours before it is safe to handle. Drips that has formed and cured on the edges can be removed using a razor knife and then sanded flush. For a scratch resistant finish, buff the surface with polishing or automotive rubbing compound and then use a soft cotton rag to apply several coats of furniture polish or carnauba wax and buff to a high gloss. Scuffs and scratches can be removed using the same process.



FULL CURE SCHEDULE

The MAX CLR resin family was specially formulated for its exceptional color stability over a prolonged period. Resin's reactivity is then formulated to cure slower to reduce exothermic heat generation during its crosslinking process. The intentional cure latency prevents high temperature exotherm from generating which will reduce thermal oxidation from occurring within the resin matrix which in turn retards premature yellowing.

For countertops and tabletops, it can take up to 7 days to achieve full cure and be safe to support heavy objects before. Indentations may appear if any object is placed on top of the coating before it fully cures. Avoid placing hot coffee mugs or other hot items directly on top of the coating.

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Reclaimed Wood From Bowling Lane Restaurant Tabletop With MAX CLR-TC A/B

http://s75.photobucket.com/albums/i293/ebayPCI/reclaimed_wood_tabletop/

abrasive polishing compound followed by an orbital buffing using a none abrasive wax polishing



After 7 to 10 days of curing, the coated table tops were polished using a low speed polisher and polishing compound which improves the surface gloss and scratch resistance of the table top.

Apply an abrasive free carnauba wax polish for a higher gloss and luster,

To view the surface polishing technique please visit our YouTube Presentation at the following link:

MAX CLR POLISHING

Demonstration

<http://youtu.be/t1pJseXmFoU>

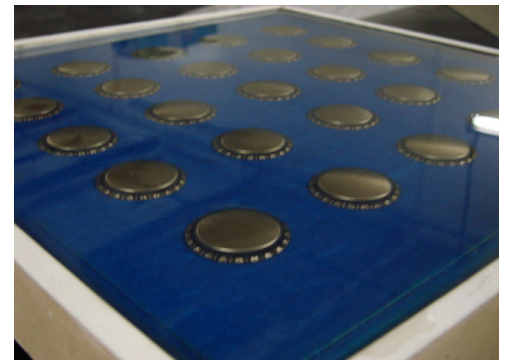
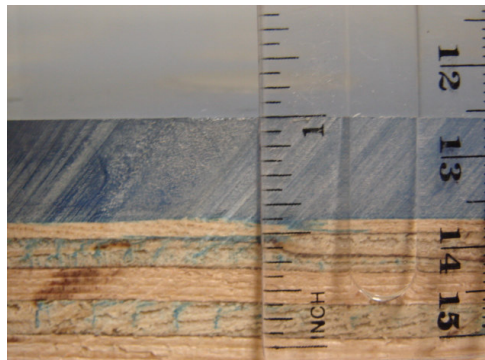
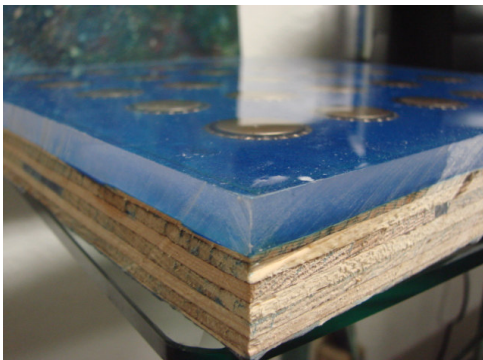
Thick Objects Imbedding And Other Memorabilia

Imbedding thick or bulky items must be presealed prior to encapsulating it in the MAX CLR. The presealing process is required to prevent any outgassing of any air bubbles that as the resin begins to exotherm. Microscopic air bubbles will inflate to a large visible flaw due to the heat that the resin produces causing the entrapped air to expand.

This progression is called nucleation and will occur more prominently on porous or objects with sharp undercuts or drafts. To avoid bubble outgassing, it must first be encapsulated to seal off any void that can be a potential source of outgassing.

Visit our Photo Sharing Site For More Information

<http://s75.photobucket.com/albums/i293/ebayPCI/MAX%20CLR%20IMBEDDING%20BOTTLE%20CAPS/>



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To view the imbedding process, please click on the link below

This Hot Wheels® car was presealed and encapsulated and then encapsulated with MAX CLR A/B



To view the imbedding process, please click on the link below

<http://s75.photobucket.com/albums/i293/ebayPCI/MAX CLR CAR IMBEDDING/>

To view the more related instructional videos regarding MAX CLR resin system and other specially engineered products and applications, please visit our YouTube at:

<http://www.youtube.com/user/PolymerProductsPCI>



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