Poured Epoxy Table and Bar Tops

I. The Epoxies

Epoxies are really just a hard plastic. Mix parts A and B together and a chemical reaction occurs between the two parts. The reaction generates heat and the epoxy gets hard. Many epoxies generate A LOT OF HEAT. So much that the mixture might froth up, melt the container it is in, smoke, and most certainly produce an uneven surface. With epoxies like these you are generally told to pour out layers less than half an inch or one quarter inch (so that less heat and distortion results due to the lesser amount of epoxy present and the amount of surface area to 'expel the heat).

Most people would like a thick clear epoxy to apply to their table or bar top. Thick, unfortunately has trouble with trapped tiny air bubbles. Mixing and pouring the epoxy introduces bubbles to the mixture. Fortunately most will rise to the surface and pop before the epoxy gets hard and traps them. Quickly passing a heat source across the surface of the epoxy will pop any bubbles on the surface.

Like most plastics, epoxies will soften with heat. Generally if you place something that is hotter than about 125 degrees F (such as a hot coffee cup) it might soften the epoxy to the point of leaving a dent, ring or depression in the epoxy that will not go away. Keep hot things away from your epoxy surface.

Epoxies do not do well in direct sunlight (direct UV exposure). They will turn cloudy and yellow, lose their shine and perhaps even chalk. All epoxies, especially white and clear epoxies do this. Most do it rather quickly, within a few days of constant exposure. Some, like our Bio Clear 810 do it very very slowly (weeks instead of days). I know of only three ways to fix this: 1) keep the table out of direct sun, 2) varnish seems to prevent yellowing if applied over the epoxy, but it is a yellow coating to start with, 3) one or two coats of clear 2-part Acrylic Poly UV Plus will stop or diminish UV yellowing of the epoxy.

Epoxies may feel hard and 'cured' within a few hours, but they take a week or more to cure completely. If you make the mistake of putting paper or a heavy or sharp object on an epoxy surface that is less than several days old, it will glue itself to the epoxy and the objects will 'dent' the epoxy.

It is common to build up the thickness by doing a multiple layers of epoxy pours (generally because of the heat release on most epoxies). Limit pours to 1.5 gallons on 1/4 inch whichever is less.

II. Bio Clear 810 - Pourable Table Top Epoxy

Bio Clear 810 is our recommended pour-on coating. Almost as watery as the Low V epoxy, it can be applied thicker - up to 1 1/2 inch thick in very small pours (ounces of epoxy) or 1/4 to 1/2 inch in larger pours. It resists yellowing better than any clear epoxy I've ever seen. Its only down side is that it cannot be applied as a thin coat (i.e by brush or poured very thinly). For a poured on surface greater than 1/4 inch, this is the best product we have ever used.

Yes you can encase shells, pictures, etc. in the epoxy. We have only heard of one case of the inks/colors running and that was with cheap Mardi Gras decorations. No reports of problems with photographs. Note, however, these things might release air bubbles when flooded with epoxy.

III. Basic No Blush 2 Epoxy - Thick Brush-on Epoxy

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Basic No Blush 2 is one of our most popular epoxies. It is our thickest clear epoxy (although I would still call it medium thick). One or two coats brushed on will give a nice, semi thick coating look to any object. Like the Low V epoxy above it will yellow easily and if applied much thicker than 3/16 inch, it will generate enough heat to give an uneven surface. Use mostly as a thick brush on coating. Only sold in 1.5 gallon units and 15 gallon productions kits.

IV. Low V Epoxy - Thin, Sealing, Penetrating Epoxy

Our Low V Epoxy is a thin watery epoxy. It is often used as a penetrating or sealing epoxy. I used it, applied by brush, on a bathroom counter, brushing on about 5 or six coats. Low V has a large heat release (exotherm) so if pour applied keep the layers about 3/16 inch thick at most. Low V also yellows rather quickly. Use mostly as a sealer. Only sold in 1.5 quart (48 oz.) test units, 3 gallon units and 15 gallon production kits.

V. Top-Coating & Protecting the Epoxy

RECOMMENDATION: If the table will receive direct sunlight, consider topcoating the epoxy (with one or two coats of the Acrylic Poly UV plus (one gallon kits only) - which contains max amount of UV blockers as well as the toughness and gloss of a 2 part polyurethane. For less toughness, try a coat of our Solar Gard acrylic UV blocker (quart kits only).

VI. The Process

A. Surface to be topcoated must be clean and free of oils, grease and contamination. The epoxy and the surface to be coated should be at a constant 68 degrees or warmer for 24 hours before and after the pour. Get everything at the same temperature - epoxy and all the surfaces and keep it that way for a day or so after the pour. Avoid applying near windows etc. where sunlight will change the temperature. Temperature changes (warmer temps) may cause bubbles to form. If you are embedding objects into the epoxy you will first need to 'glue' the object in place so that the epoxy does not dislodge the object as it flows across the surface. The colors in cheap paper objects may run when covered with the epoxy - test before using.

B. Next, mix a bit of A and B (2:1 mix ratio) and test on your surface. This is to give you experience with the product, test compatibility with your surface, bubbles coming out of the surface, etc. No one wants surprises with the main pour! Make sure your edges/corners don't leak! (you can seal with a bit of this test bit of epoxy - then re-test for leaks!). Mix thoroughly. Even a slightly less then perfect mixing can ruin a table pour and Murphy's Law seems to always apply. Make sure parts A and B are clear (part A and/or Part B) may have a slight yellow or amber tint, this will not be visible in your pour). Try to incorporate all the material along the sides and bottom of the container.

C. Now, mix up batches no larger than 1.5 gallons at a time. Mixing too fast will introduce excess bubbles.

D. Pour the epoxy evenly across the table/bar top. Don't try to get the last few drops of epoxy out of your mixing container. The liquid sticking to the sides and corners/edges of the container never get completely mixed. Pour your mixture out of the mixing container but don't keep it draining out for more than 10 seconds or so. Poorly mixed epoxy will always stay tacky or wet, either in certain areas or all over.

E. If any bubbles have formed pass a heat gun (or super quick pass with a propane torch/cooking torch) over the surface (do not allow any flame to touch the epoxy). It will remove surface (surface only) bubbles and help the lower bubbles to rise.

F. Setting up a fan to blow air over the poured epoxy surface will help 'even out' temperature 'hot spots' that can cause stress cracks, uneven surfaces, etc.

G. The epoxy will feel dry and firm overnight but will continue hardening for a week or so. Don't place papers or objects on the epoxy for at least several days or they will stick or leave a dent.

H. Epoxies will yellow in sunlight - if this is an issue topcoat with our 2 part Acrylic Poly Plus with UV protectors.

VII. APPLICATION NOTES AND WARNINGS (MOSTLY FOR BIO CLEAR 810, BUT APPLIES TO OTHER EPOXIES AS WELL). PLEASE READ!!

A. Some surfaces will release a lot of air bubbles. Cheap inks may bleed. Unknown or unsuspected contaminants on the surface may discolor the epoxy. Sudden changes in temperature or humidity may affect the epoxy. Make sure your raised edges or sills are leakproof and level. Once poured, it is almost impossible to stop an epoxy leak in a corner. Bio-Clear 810 cannot be brushed on. It must be poured at sufficient depth to prevent surface tension related fisheyes.

B. Even a slightly less then perfect mixing can ruin a table pour. Thoroughly mix Bio-Clear 810 epoxy base with the Bio-Clear 810 curing agent. Make sure that both parts A and B are clear prior to mixing - if not, do not proceed and contact supplier). Mixture will also be clear after mixing. Use a mechanical mixer on a low speed if possible to ensure thorough mixing. The mixing ratio is 2/1 (base/curing agent) by volume or 1/0.43 by weight. The epoxy at the corner of the bottom and sides, and on the bottom will probably not be mixed well enough. Therefore, after mixing do not try to get every last drop out of the mixing container (don't overturn the mixing container and drain it for a long period of time). Bio-Clear 810 does not require a 'sweat-in' or induction time and the mixed components should be used immediately.

C. Although trapped air bubbles are less of a problem with thin watery epoxies you should take care to minimize bubble formation. To minimize bubbles, mix the 2 part epoxy completely but slowly. In other words don't use a mixer on a drill turning at 1200 rpm or more. Be sure you are not getting escaped air (and bubbles) from the table/bar surface or the objects you might be embedding in the epoxy. Bubbles resulting from the mixing process will rise to the surface and most or all will pop. Heat from a torch (do not allow flame to touch the epoxy) or hair drier (set on low so that the moving air does not distort the epoxy) will usually pop most remaining surface bubbles.

D. Setting up a fan to blow air over the poured epoxy surface will help 'even out' temperature 'hot spots' that can cause stress cracks, uneven surfaces, etc.

E. You can sand out flaws etc. The cloudy surface that results can be made clear again with a clear topcoat of just about anything (note that the Bio-Clear 810 cannot be applied thinly - it will fisheye).

F. The epoxy will feel dry and firm overnight but will continue hardening for a week or so. Don't place papers or objects on the epoxy for at least several days or they will stick or leave a dent.

G. Unless top-coated with a UV absorber, this epoxy will yellow and eventually turn cloudy with exposure to sunlight. This epoxy will generate a considerable amount of heat when it hardens. Thin plastic containers will melt.

H. As noted before, test the epoxy on your surface. What happens after the clear epoxy is poured upon the surface is the sole responsibility of the purchaser. Supplier liability is limited to one 3 gallon unit maximum for Bio-Clear 810, and one 1.5 gal unit of our other clear epoxies. See Warranty statement.

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I. Temperature will exert a considerable influence on the rate of curing of chemically cured coatings such as Bio-Clear 810 epoxy. In broad terms expect each 10°C, (18°F), rise or fall in temperature to half or double dry times and pot lives.

J. WE HAVE HAD REPORTS OF STRESS CRACKS IN LARGE POURS (LARGE TABLES WITH PERHAPS 15 GALLONS POURED OUT ALL AT ONCE). THE SOLUTION SEEMS TO BE TO LIMIT POURS OF ANY SIZE TO A FEW GALLONS AT A TIME.

K. Ridges and an uneven surface. Just like the stress cracks, this is a result of too much epoxy (too thick) applied at one time. The unevenness is from the heat generated (unevenly) in the pour.

WHAT CAN GO WRONG - PROBLEMS WE HEAR ABOUT

1) The epoxy leaks out from the corners - seal the edges and corners (using some of the epoxy, varnish, etc.). Test (maybe with water) before your big pour.

2) Bubbles in the epoxy - either from mixing too vigorously (you're not making whip cream!) or from the wood/objects you are covering with the epoxy. Sealing the surface prior to the pour will take care of the bubbles from objects in the epoxy. To remove bubbles quickly pass a torch/heat gun over the surface of the epoxy once the bubbles have reached the surface of the epoxy.

3) Stress cracks on large pours (say over 3 or 4 gallons, or maybe greater than 15 or 16 square feet) - stress cracks can form from all the different temperatures generated. The bigger the pour the thinner each layer of epoxy has to be to 'handle' all the heat. I wish I could be more exact here, but I have no 'real' numbers to offer. I have found that running a fan across the poured epoxy helps to dissipate and even-out the heat