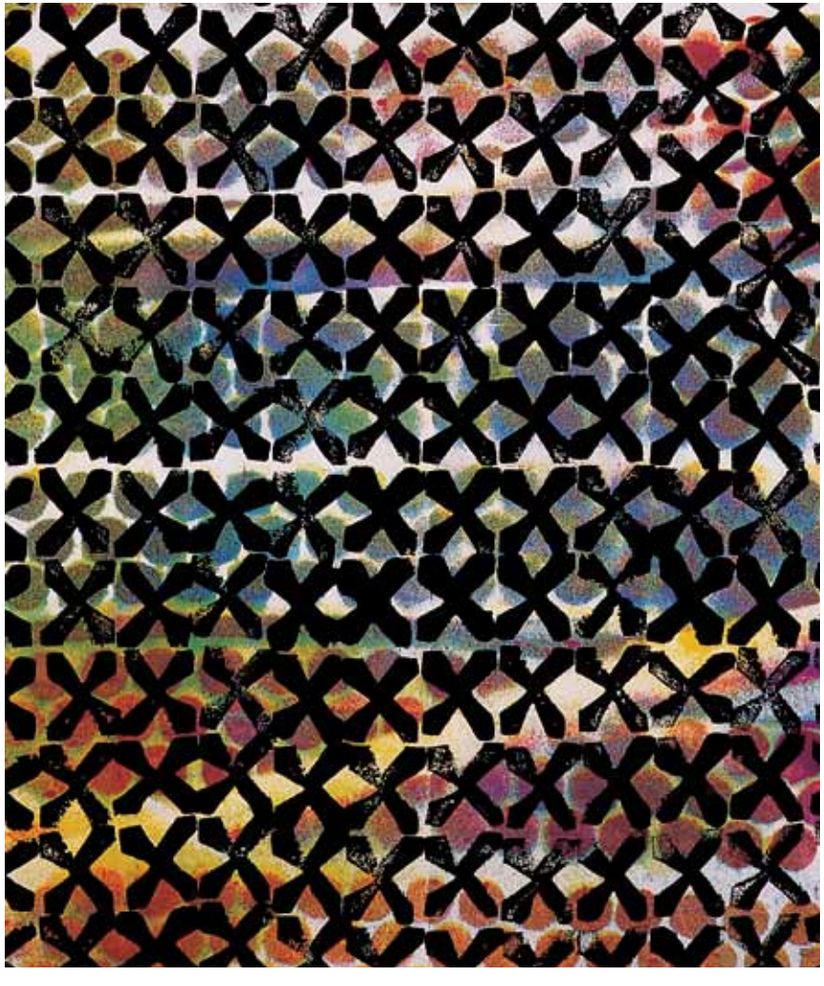
12 QUESTIONS & ANSWERS

You have read the text, done all the exercises, and followed some of the suggestions and you still have questions? I have sorted and answered some of the most frequently asked questions here, hoping to address most of yours. Keep in mind that something new always seems more difficult. Most of your confusion, particularly about what works and why, will be answered by your own experience and practice.

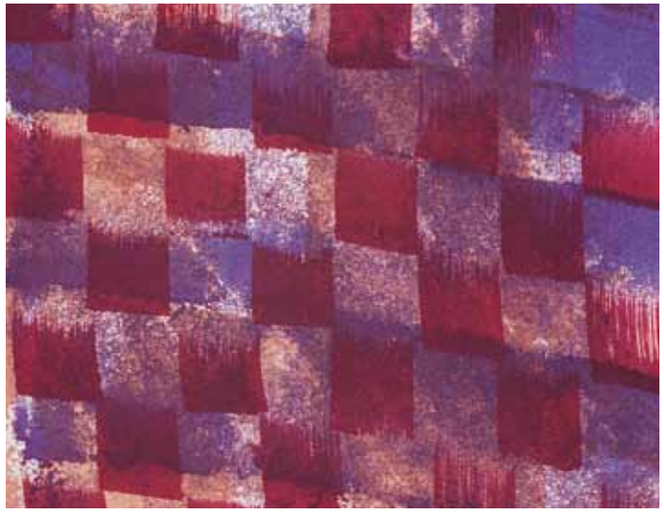
Thin colors were sprayed onto dry fabric through a grid with circular holes, then thick black was printed with x-shaped sponge.



The most important question comes first. If you can remember the answer, you don't need this book anymore.

What happened to make the colors look lighter than I expected? Remember that transparent colors look much darker when wet than dry. If you have applied more dye than the fabric can absorb, the fabric will look lighter after it is washed, but as a general rule, *the way the fabric looks after it is painted and dry should be very close to the way it looks when it is washed and dried.* If not, check for the following possibilities:

- Was a less reactive dye used, not Procion®MX?
- Was pure sodium carbonate used?
- Was the soda solution mixed the right strength?
- Was the soda solution washed out by the rain or by a water spray in the spin cycle of the washer?
- Is the fabric 100 percent cellulose fiber or 100 percent silk?
- Is the fabric loose-weave or very thin?
- Was the dye powder dissolved in water over 95° F (35° C)?
- Was the dye powder stored too long, too warm, or too damp?
- Was the dye concentrate stored too long or too warm?
- Was the dye concentrate mixed with too much print paste and/or urea water?
- Were colors painted over too many layers of dye and print paste?
- Did you cure the fabrics at room temperature?
- Did the fabric dry before all the dye could fix?



Notched sponge brushes make red checkerboard. When those marks were almost dry, rollers with thick violet and tan were rolled across fabric.

PRODUCTS

What is the difference between dye and paint? Fabric paints and inks are often referred to as dyes because they color the fabric. However, a distinction should be made between them because of how they work. Paints and inks are ground pigments that must contain a *binder* to make the pigment adhere to the fiber. The binder is often a resin-like substance that requires heat treatment and usually adds a stiffness to the surface of the fabric, particularly in areas of intense color. Dyes have a chemical bond with the fibers that does not change the hand of the fabric. Fiber-reactive dyes have an electron bond which is very strong, allowing the fabric to withstand repeated washings and strong light. Other types of dye link with the fiber in various ways and vary in strength accordingly.

I consider paints and inks an important option for embellishing the fabric after it is dyed and washed. Using fabric paint is a good way to add light areas to dark fabric, or metallic highlights to the design. There are many brands, new ones appearing all the time. They vary tremendously in their ability to stick to the fabric and

other characteristics – their qualities can only be judged by trial. Keep in mind the function of the fabric and how often it will be washed. When choosing and testing paints and inks for fabric, be sure to consider the following: light fastness, wash fastness, rub fastness, how they feel and look when stitched, and the overall texture and drape of the fabric.

What ecological considerations are there in using and disposing of Procion®MX dyes and related chemicals? In surface applications of dye, a very small amount of dye is used and about 90 percent of it is attached to the fibers when the correct curing is done. Any dye that does not react with the fiber is inert or no longer reactive, because it has bonded with water before dyeing or during the wash-out process. The sodium carbonate used in the dye process is also in the laundry detergents we use. It is a natural product of the earth, and it should be disposed of in the same way as your laundry products. Synthrapol is also similar to many laundry products and can be handled accordingly. Urea is a moisturizing agent found in many cosmetics. Sodium alginate is a protein extracted from seaweed and is harmless.

Can I paint and print on wool with Procion®MX dyes? Wool requires acid for fiber-reactive dyes to bond. Procion®MX dyes can be formulated with acid to work with wool. There are many things to consider for dyeing wool, and I would recommend that you consider using one of the acid dyes that are made for wool before you begin.

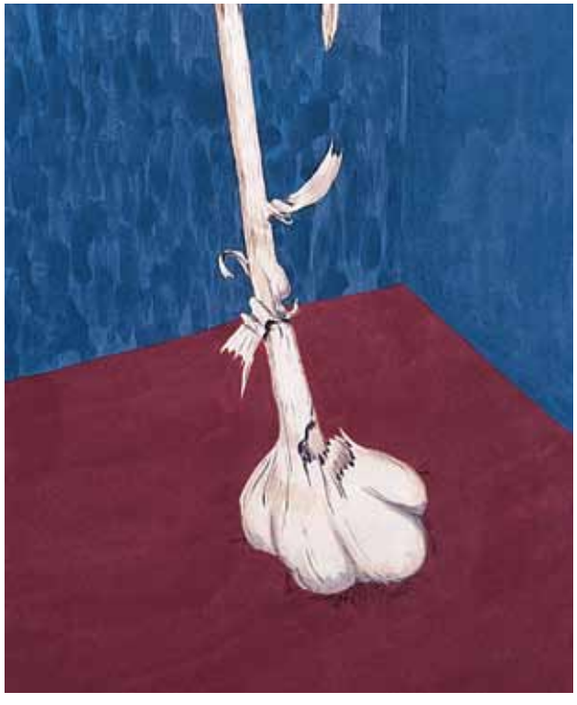
Is there a product that will cut down on the work of washing out excess dyes from fabric? Synthrapol SP is designed to do just that. The letters "SP" stand for "soaping Procion." It gets into the fibers and works to release any unreacted dye. Hot water and agitation of the fabric increase the release of unreacted dye. I use Synthrapol SP in each wash until all the unreacted dye is out. After that, I use regular laundry detergent.

Should I use Retayne or similar products for washing my dyed fabrics? Retayne is a retention agent designed for direct dyes that are not wash fast. It will also react with fiber-reactive dyes. Retention products each work at a particular temperature, making the molecules larger, trapping the dye within the fibers, and increasing their wet-fastness. After one is used, the fabric should not be washed in hot water, because this will release trapped dye molecules.

A retention agent is not necessary with Procion®MX dyes because they produce a bond between the fiber and the dye that is not water-soluble. The excess dye needs to be washed away; then the fabric is ready to use. In fact, if such a product were used with Procion®MX dye, some of the unreacted dye may be trapped on the fiber and released later when it is washed in hot water, possibly staining the fabric.

Can I use washing soda from the grocery store in place of soda ash? No, washing soda sold as a laundry product is of undetermined strength and has additives such as bleach and perfume, which could influence the results you get with the dye process. Sodium carbonate is the chemical required, and the purer the form used, the more predictable the results. The same is true of water softeners from the grocery store if used in place of metaphos in the print paste.

Why don't you use gutta as a resist? Gutta is a general term used for many products that are used for holding the flow of dyes within the lines where it is painted. Some of them are water-soluble, others are not. They are most often used for silk scarf painting with thin dyes. Many of them do not penetrate heavier weaves of fabric and do not resist the dye if it is painted over the gutta.



Clear print paste painted on silk with thickened colors blended on top. Fine lines were painted on dry fabric.

Can I use powdered Procion®MX dyes without making dye concentrates? You may want to use powdered dyes instead of dye concentrate for your painting and printing. Though this method is popular with some dyers, it is not one I recommend. I find it more trouble to measure the powder accurately than it is worth. For this method, follow all the steps on page 36 - 37, but skip Step 4. Instead, wearing a dust mask, measure the dry powder directly into 1 cup (240 ml) print paste. If it doesn't dissolve easily, try stirring a small amount of warm water into the powder.

For pale colors 1/2 tsp (2.5 ml) or less dye powder

For dark colors Up to 6 tsp (30 ml) dye powder

Store refrigerated up to five days, as long there is no contamination with soda ash.

What if I cannot find Procion®MX dyes where I live? Procion®MX dyes were originally formulated for industrial use, and our ability to get the products we need for studio work are dependent on that fact. The dye suppliers for artists buy and repackage products from the chemical industry in quantities we can use during their shelf life.

We live in a global marketplace. Procion®MX dyes have been manufactured by several different companies over the years and in different countries around the world. You might live in the country of manufacture, and not be able to buy it there. When I buy dye, it has been made in one country and sold to a distributor in another country before being shipped to me in Oregon from another state in the United States.

Will I always be able to find Procion®MX dyes? Many producers and manufacturers depend on using particular chemicals like Procion®MX dyes, and they will be in demand for a long time. There may be completely new dyes someday that will work with cellulose and silk under the same conditions as Procion®MX dyes, but availability of chemicals depends on legislation and approval by government agencies in addition to perceived demand by suppliers. There are many dyes that work well and easily in immersion dyeing conditions, some requiring hotter temperatures, but they are not as simple to use for surface applications on fabric because their heat and moisture requirements are higher than room temperature. The availability of Procion®MX dyes is changing and now some dyes are manufactured "copies." The best way to have consistent results is to purchase from suppliers who sell laboratory tested products.

Can I buy dye already mixed with water to avoid mixing powders? Procion®MX dyes are not sold as liquids because at temperatures above 70° F (21° C) they will react with water over time and lose their strength. Dyes sold as a liquid are not as reactive as Procion®MX dyes.

Can I use other fiber-reactive dyes with these recipes? Cibacron®F dyes, also referred to by some suppliers as Sabracron dyes, are less reactive than Procion® MX dyes, so they react more slowly with the fabric and can be stored longer when mixed with water. Recipes and applications are similar to those designed for Procion® MX dye, but curing times are twice as long, that is 12 to 48 hours. They require warmer temperatures over a broader range: 105° F to 120° F (40° C to 50° C), so some colors will work acceptably at room temperature following these recipes and others will not. There are fewer single-chemical colors in Cibacron®F dyes than in Procion®MX dyes.

Procion®H dyes are very much less reactive than Procion® MX dyes, so they can be stored longer in solution and are often sold in liquid form. Their slower reactivity also means that they will not work without stronger alkali, heat and/or more time to make them bond with the fibers. They require temperatures of 170° F to 80° F (77 ° C to 82° C) for curing. They should not be used for painting or printing without steaming equipment. They will not work with the recipes in this book.

Cotton was monoprinted, then painted, masked and painted again.

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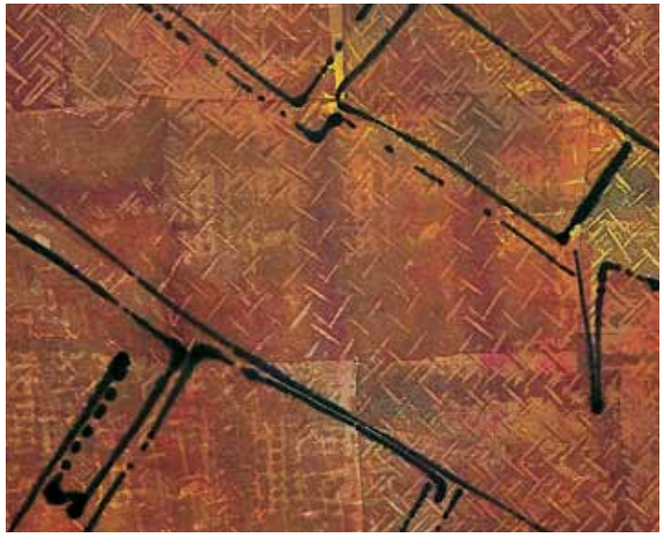


Roller impression picked up from the paint tray on dry fabric. Lines of thick black were drawn over wet colors.

PROCESS

If I have refrigerated the dye stock, should I warm it to room temperature before I paint or print? Do not try to heat the dyes; temperatures over about 100° F (38° C) will damage them. If you combine the dye stock with print paste and urea water that have been stored at room temperature, the mixture is warmed up considerably when you mix them with cold dye concentrate. In any case, when the color is put on the fabric in a thin layer in a warm room, it gets up to room temperature fairly quickly. The temperature during the cure time is the essential element.

If I don't remember whether or not I put the fabric in soda, do I have to wash it before I put it in soda again? No, putting it in the soda solution will not change the concentration of the alkali. Soak the fabric in your soda solution (again) whenever you are in doubt.

Suppose I painted my fabric and then realize that I forgot to put it in soda. What should I do? If you put it in a soda solution after you paint, much of the dye will float off and smear all over the fabric. If you spray soda solution on, it will blur. I suggest washing your fabric thoroughly and starting over with what is left. You will be amazed how much dye sticks when there is no soda, but that dye is not bonded. It is only staining the fabric and is not fast to light or washing.

I am making a piece for the wall. Why do I have to wash my dyed fabric? One reason to use dye is to maintain the texture and weight of the fabric; the unfixed dye and chemicals fill and cover the weave of the fabric until it is washed. Silk, for example, will not have the glow or sheen associated with it if the surface is covered. Also, the sodium alginate in the print paste is pure protein, and in combination with urea, which attracts moisture, the fabric will look dull and possibly get moldy if not washed out. Most importantly, the excess dye that has not reacted with the fiber molecules will have poor light fastness and can bleed if in contact with moisture.

Why did the white areas of my design become tinted during washing? This happens when you move to hot water too suddenly in the washout process, before the soda has been completely removed. Even though the dye is no longer reactive, having bonded either with the fiber or the water in the dyeing process, those molecules not bonded to the fiber circulate in the wash water and can act as direct dyes if any alkali is present. Direct dyes sit between the fibers and have very poor wash-fastness. If the staining is not too bad, several hot washes with Synthrapol SP may wash out some color. Silk requires the most care in washing because it stains more easily than cotton. It will hold a lot of color even without acid or alkali, although those colors will have poor wash-fastness.

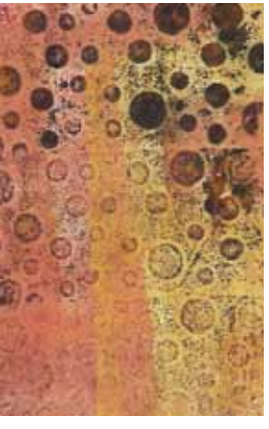
Why does silk work with alkali or acid recipes? Silk is a protein fiber, but it does not have the same molecular make up as wool or other furs, which require acid for dyeing. Its structure has a site with which the Procion® MX dyes can bond using either alkali or acid. Alkali can damage silk fibers if it remains moist for a long time, however, you will not have any problems with deterioration of the silk fibers if you store the silk soaked in soda solution and keep it 100 percent dry. To be safe, use dry, soda-soaked silk within a month, and make sure it is washed soon after the dye has cured, whether painted, printed, or immersion dyed.

White cotton was crumpled tightly and dyed orange in low-water immersion dye-bath. It was washed, dried, soda-soaked, dried again and painted with hot potato dextrin from a squeeze bottle. After the dextrin dried, thick black was rolled over all.

TECHNIQUES

Why is the dye bleeding out beyond my pencil line as I paint? Control of the flow of the colors takes practice. The dye concentrate and print paste need to be mixed to the consistency appropriate to the mark you want to make and the tool you use. There are some things to keep in mind that might increase your control.

- After you wash the brush, squeeze out excess water with a towel.
- Work on dry fabric; the line will spread more if the fabric is wet.
- Too much dye concentrate in medium or thin print paste makes the mixture too runny. If you want to use double-strength color, start with thick print paste.
- Even when the color is extra-thick, if it is mounded on heavily, it will flatten and spread.
- When working with medium or thin color, be ready to blot it with a paper towel to control its flow.



How many layers of color can I paint on top of each other? The answer depends on how dark the colors are and how thick you use them. The print paste itself slightly resists the penetration of dye into fibers. One thick layer will resist and dilute the next layer of color considerably. If the first layer is navy blue, a subsequent layer of yellow will not have much visual impact. If layers of thick pale colors are applied first, then black is painted over it, the fabric will look black before it is washed, but not after; it will be gray. The dye can penetrate colors that were mixed with thin or medium-thin print paste more easily. The first color applied to the fabric penetrates the most and will show through any other color. Practice will help you predict the final color of the fabric. After I apply several layers of color, I sometimes want to see what I have, so I wash and dry it. Then, if I want to apply more color, I soak it in soda solution again and get to work.

Can I iron the fabric after it has been painted but not washed? Allow time for the fabric to cure and dry first. If you don't wait, the dyes won't have their fullest color. If the fabric has dried with wrinkles and lumps because it was not stretched and you want to work on flat fabric, iron it with a warm iron, not hot. Remember that sodium alginate is a protein and it can be hard to wash out if it has been heated too much.

How can I make colors turn out exactly the same each time? With paint and print applications this is practically impossible. Even if you measure the dye powders by weight and use them with exactly the same amount of print paste, measured by weight, the density of color will vary with every brush stroke or stamp mark you make. The beauty of hand-produced textiles is their individuality, not their uniformity.

When should I spread print paste on the fabric before I paint? Print paste acts as a slight resist when color is painted or printed over it, so I only use this technique when I want a surface that allows me to spread the color evenly and smoothly, blending a large area. This is very difficult to do on dry

fabric or fabric that is wet with soda solution. Print paste wets the fabric, and allows you to move some of the color around on it. If there is an area of the design that I wish to be very dark, I paint or print it first, let it cure, and then put print paste over it.

What causes patches of washed-out colors where I have applied a lot of dye? When soda solution is on the fabric and a lot of dye is applied in one place, whether thick or thin, the liquid may dilute the soda solution so that it is not concentrated enough to fix the dyes in that spot. I usually brush or blot away any blobs of excess dye before I leave it to cure, in order to minimize this effect.

Why do colors appear lighter than I expect when I paint on wet soda-soaked fabric? The colors spread out when you work on wet fabric; they are not as concentrated as they would be when they stay where you put them. Also, the colors are diluted by the moisture in the soda solution. If I want very dark colors on wet fabric, I use double-strength colors to compensate for all the liquid in the fabric.

How long do I have to wait before I can paint over a layer of color without smearing it? That depends on how quickly it is drying and what you plan to do. Using a heavy stroke over partly dry color may smear it away from where it was placed. If you wait until the area first painted is almost dry to the touch and paint lightly over it, working towards the color and not away from it, you can proceed without too much smearing. Block printing may pick up some of the color that was first put down and place it on the next place you print. That, however, may give you exactly the hand-painted effect you want.