

PROCION IMMERSION DYE RIFF

GENERAL INFORMATION

“Procion” is a trademark of ICI, Americas, Inc. The Procion family of dyes was discovered by ICI in England, in 1956, and has been in continuous development ever since. Fiber-reactive dyes develop color inside the fiber, rather than on the surface, thereby improving light-fastness and wash-fastness. No dyes available to home- or studio-dyer are more permanent than Procion dyes.

Procion dyes are inert until dissolved in an alkaline solution—then they will attempt to make a bond whether or not a suitable fiber is present. After an hour or two the solution begins to lose potency to do new dyeing, even if there is still pigment in the bath. After several hours, the solution will no longer work, fiber put into the pot will stain rather than dye—the color will not be true or fast.

These dyes were designed for use on cellulosic, vegetable-based fibers: cotton, linen, jute, hemp, sisal, ramie, rayon. Polyesters are sometimes open to them, depending on how spun. The only chemicals required, besides the dyes, are Table Salt (sodium chloride) and Washing Soda (sodium carbonate). Soda is the activator. Salt levels color and improves the solubility and take up of the dye. Grocery store Washing Soda almost invariably is “improved” by the addition of bleaching agents. It’s a good rule to get your Soda where you get your dye to be sure of purity.

It’s possible to use Procion dyes on protein-based fibers: wool, silk, nylon. Two recipe changes are the key. Turn the bath acidic by adding any mild acid—distilled white vinegar (acetic acid), citric acid, oxalic acid—one cup per gallon of dye bath. And raise the temperature of the dye bath gradually to a simmer.

BASIC PROCION RECIPE

This recipe dyes one pound of fiber to a medium shade. Results vary with the fiber used. To dye more than a pound, scale all quantities upwards proportionately. To dye less than a pound, scale down. For lighter or darker shades, use less or more of all the powders, keeping the same proportions among them.

For very dark colors, leave fiber in the dye bath for a longer time, up to twenty-four hours. For still darker shades—over-dye—do the entire process again.

Woven cloth needs less dye to achieve a given depth of shade than knitted cloth, or skeined yarn, or unspun fiber.

The left column below gives measurements in “kitchen” form, the right column in metric units. The kitchen units are volumes, inherently inexact for powders. If you can once master the metric form—calculating (scaling up or down, for instance) is vastly simpler and your results will be far more precise and repeatable. You’ll need an accurate scale.

If you get consistently poor results, check your water, your fiber, and your chemicals. Try a water-softener if the colors are dull. Let your water stand overnight if the colors are thin. Be sure your Soda has not been “improved”. Find out if your dyes are too old, or have been stored improperly. Follow the same recipe with fiber you’re sure is dyeable—an old, many times washed, all cotton T-shirt, for example.

SODA is washing soda, sal soda, sodium carbonate, soda ash. SALT is regular table salt, sodium chloride. A pound of FIBER is 2 to 5 yards of woven cloth, a lesser yardage of knits, the simple dry weight of yarn or unspun.

BASIC PROPORTIONS

1 pound	FIBER	454 grams
2.5 gallons	WATER	9 liters
1 tablespoon	DYE	9 grams
40 tablespoons	SALT ..	860 grams (2.5 cups)
4 tablespoons	SODA	48 grams

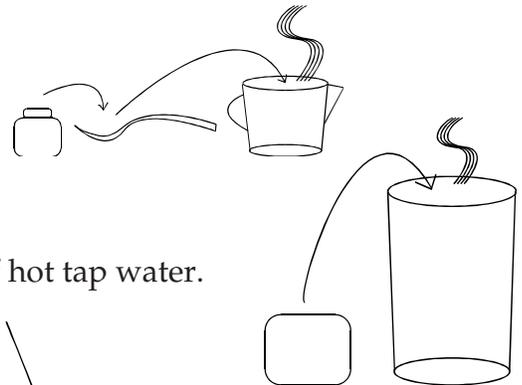
RECIPE SCHEMATIC

1. PREPARE FIBER

Prepare your fiber by washing and rinsing. Re-wet before dyeing.

2. DISSOLVE DYE

Make a paste of the dye in a tablespoon of cold water, stir the paste into a cup of hot tap water (140°F).

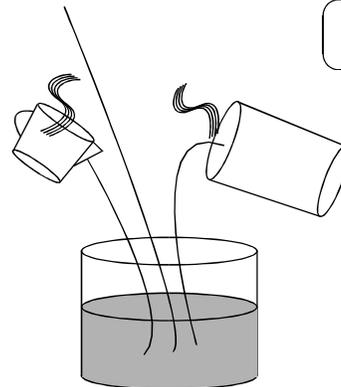


3. DISSOLVE SALT

In another container, dissolve the salt in two quarts of hot tap water.

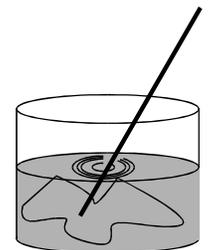
4. MIX DYEBATH

Mix the two solutions in your dyepot and add the rest of the water: in all, two-and-one-half gallons. This is your dyebath. The ideal temperature is 85°F, up to 100°F is okay (Turquoise MX-G, alone and in mixes, strikes best at 140°F).



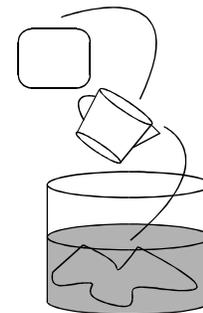
5. ADD FIBER

Submerge pre-wetted fiber in the dyebath. Let soak for six minutes, stir a little, keep submerged.



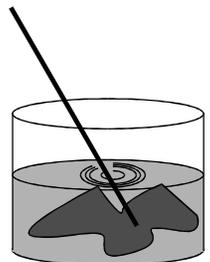
6. ADD SODA

Dissolve the soda in a cup of hot water, boiling if necessary. Add the soda solution to the dyebath. Your dyebath is now activated.



7. STIR

Stir occasionally for fifteen minutes (minimum). The longer the immersion, the deeper the color. But for batik use the minimum time: activated dye solutions degrade wax.



8. FIX AND FINISH

Rinse in warm water to be rid of excess dye. Wash with mild detergent in hot water to set the dye and remove all dye residues (normal washing-machine "hot" cycle is hot enough, simmer skeins, boiling is okay for cotton). Air dry.

(If you are batiking, dry cloth after the rinse in step 8, re-wax cloth, and go back to step 2 for the next color. Finally, after your last color, boil out the wax, wash and dry cloth. Dry clean to remove the last traces of wax.)

SODIUM ALGINATE

(for use with Procion Dyes)

1. MAKE GEL BASE

Work a tablespoon of Sodium Alginate into a quart of warm water, stirring until lumpless. A blender makes this very easy.

Add five tablespoons of Urea, stir in thoroughly.

The Gel Base can be kept for months, especially if refrigerated.

2. MAKE INK/PAINT

Scoop out as much Gel Base as needed. Adjust the consistency: add Sodium Alginate to thicken, water to thin. For printing: thicker than an egg-white. For painting: thinner, as you like it.

Mush in Dye, stirring for three or four minutes. A teaspoon of Dye per half-cup of Gel is a medium shade. Experience will teach how much Dye yields a given depth of shade on a given fabric (note: the Pigmented Gel keeps 2-3 weeks if refrigerated).

3. ACTIVATE AND APPLY

Sodium Bicarbonate (baking soda) turns on the dye. Add to the Pigmented Gel, stirring in thoroughly, one teaspoon of Baking Soda per cup of Gel. An hour after the Bicarbonate goes in, the Dye begins to die. So, activate in small batches, never more than an hour's worth at a time. Brush or press or otherwise apply the paint to your fabric. Use several colors at a time, if you like.

4. FIX AND FINISH

Air dry cloth. Then heat set: bake five minutes at 285°F, or press with an iron set at 285°F or at "steam". If you bake, put a pan of water under the cloth. If you iron, cover the board and the fabric with clean paper (not newspaper) or scrap cloth. And press both sides to insure sufficient heat.

Rinse your fabric in hot soapy water, then in warm running water until the water runs clear. Wash in mild detergent. Air dry.

GEL BASE

1 tablespoon SODIUM ALGINATE
1 quart WATER
5 tablespoons UREA

INK/PAINT

1 teaspoon DYE
1 half cup GEL

ACTIVATE

1 teaspoon SODA
per
1 cup GEL

Approximate Metric Equivalences

1 tablespoon SODIUM ALGINATE—14 gm
1 quart WATER—910 gm
1 tablespoon UREA—15 gm
1 teaspoon DYE—3 gm
1 teaspoon BAKING SODA—5 gm