

THE INDIGO RIFF

Before you buy Indigo, make sure it's what you want. It doesn't work like other natural dyes; the procedure may be more complicated than you expect. A blue chemical dye might better suit your needs. Before this sounds too negative, be assured that the blue obtained from Indigo is extraordinarily lovely and rewards you well for your effort.

Why is Indigo different? It is not water-soluble. It is a substantive dye, needing no mordant, yet the color achieved is extremely fast to washing and to light. Indigo is one of the most ancient and revered of all dyestuffs. The three recipes here all tell you how to dissolve Indigo, and how to dye with it. Deeper history and chemistry may be found in any good dye book.

Recipe #1 and Recipe #2 are quick, reliable, and very colorfast. Recipe #3, the fermentation method, is slower and less certain—but it's the easiest method to start with.



Recipe #1: INDIGO HYDROSULFITE VAT

First a note about the chemicals. They should be treated with care and common sense, but without panic. Keep them dry, out of children's reach, away from food and use clean dry utensils for measuring. Always measure the water first, into a clean container; then add the chemicals to the water, so that you start with a weak solution and gradually get stronger.

MATERIALS:

- 2 quart glass or enamel pan
- candy thermometer
- enamel dyepot
- stirring rod
- 2 glass jars — 1 quart size

CHEMICALS:

- Sodium Hydrosulfite (or Thio-Urea Dioxide)
- Sodium Hydroxide (also known as LYE)
- Natural Indigo, powder or cake or paste (Cake Indigo must be pulverized before you can dye with it.)

CAUTIONS:

Lye is very caustic. Wear rubber gloves, don't splash, especially keep out of eyes.

Solution One: Sodium Hydroxide (LYE)

- 3/4 ounce Sodium Hydroxide (LYE)
- 1/2 cup Water

Put the water in a glass jar that has a close-fitting lid. Slowly add the Sodium Hydroxide while stirring. The Solution may get quite hot. This is a strong alkali and should be handled very carefully. Close and label the jar. This can be kept indefinitely, but should be clearly marked. If any gets on your skin, wash with lots of water.

Solution Two: Sodium Hydrosulfite

- 2.5 ounce Sodium Hydrosulfite, and 1 pint water
- or 3/4 ounce Thio-Urea Dioxide (also called Spectralite), and 1 pint water

Put the water in a quart jar. Add the Hydrosulfite (or Thio-Urea. Stir gently to dissolve. Hydrosulfite will generate an unpleasant odor, and will keep for a few days only; the Thio-Urea should be good for several weeks. Close up and label jar.

Solution Three: Indigo Stock Solution

- 1 ounce Indigo
- 1/2 cup of Solution 1
- 1/2 cup of Solution 2

In a glass or enamel pan, stir one ounce Indigo Powder into 1/2 cup water, until thoroughly moistened. Stir in 1/2 cup of Solution 1. Dilute to one quart with water (add about three cups of water); and heat to 120°-130° F (never above 140° F). Add 1/2 cup Solution 2, and let stand 30 minutes. At this point you should see a yellowish solution beneath the blue surface (Indigo on the surface will oxidize back to the blue insoluble form). A drop of this solution running down a glass surface should turn blue in 20-30 seconds.

PREPARE THE DYE VAT:

- 1 oz of Indigo Stock (Solution 3)
- 2 oz of Sodium Hydrosulfite Solution (Solution 2)

In your large enamel dyepot, heat 2-3 gallon water to 120° F. Add 2 ounce (about 4 tablespoons) of Solution 2. Let stand 10 minutes. Then add 1 ounce (2 tablespoons) of Indigo Stock Solution. Let stand 30 minutes.

This should be clear and yellowish and is now ready for use. Enter the washed, wet fiber (preferably soaked overnight). Avoid making bubbles, and stir only enough to submerge the fiber. After 30 minutes—with occasional light stirring—lift fiber out without squeezing and allow to oxidize (hang it up) for another 30 minutes. Repeat this dipping and airing pattern until the desired depth of color is reached. Add more Indigo Stock Solution—2 ounces at a time—as needed for color. If you are dyeing large skeins (4 ounces or more), use 4 ounces of Stock Solution so that the dyebath won't be depleted as rapidly. If the dyebath turns blue, add another 2 ounces of Solution Two and allow to stand for 15 minutes. Always keep the dyebath at 120°-130°F.

After about four additions of Indigo Stock Solution to the exhausted dyebath, the chemistry gets tired and complex. It's simplest to start a new vat.

RINSING YOUR WORK:

When the dyeing is done, treat the fiber to neutralize any remaining alkali, and to set the dye. First rinse in lukewarm water with about one cup of vinegar added. Next rinse in cool water. Wash gently in hot soapy water. Finally, rinse in clear water.

Recipe #2: DARK BLUES WITH THE INDIGO HYDROSULFITE VAT

If you want a dark navy, use the increased-strength Stock Solution given below. Prepare Solution 1 and Solution 2 as in Recipe #1.

Concentrated Stock Solution:

- 1 oz Indigo
- 2 tablespoons of Solution 1
- 2 tablespoons of Solution 2

Stir Indigo into 2 tablespoons of water; stir in 2 tablespoons of Solution 1; dilute to one cup with water; heat to 120°-130° F; add 2 tablespoons of Solution 2.

To dye dark blue: prepare vat as before; add 3-4 tablespoons of Stock Solution; dip about 1/2 pound of fiber. After every other dipping, add 3-4 tablespoons of fresh Stock Solution. You'll have a moderately dark blue after the third dip, a very dark blue after the fourth.

Our thanks for the above Recipe to Devin McQueen, Susan Emmons, USDA Bulletin #230, Rita Adrosko's and Violetta Thurstan's books.

Recipe #3: INDIGO-YEAST-AMMONIA FERMENTATION METHOD

- 1 tablespoon powdered Yeast (bread yeast)
- 1 cup warm water
- 1 rounded tablespoon Sugar

Combine the above ingredients and let stand in a warm place for about 2 hours. At the same time, dissolve 2 level teaspoons Natural Indigo in 1/2 cup non-sudsing Ammonia (let sit for about 2 hours). Add the Indigo and Ammonia to the Yeast-Sugar mix in a half-gallon jar. Fill to the top with warm water, stir once, cover with plastic wrap, using a rubber-band to seal. Don't use a rigid seal, the fermentation can burst it.

Let this jar sit several days in a warm place. The liquid will clarify to an even yellow. The Yeast has removed all the oxygen, enabling the Indigo to dissolve. If your jar stays blue, add more yeast (if this doesn't do it, add more sugar also). When it goes yellow, immerse some pre-wetted fiber, and leave in over-night. Remove carefully (not dripping into the jar, adding oxygen). Hang in the air for 20-30 minutes. Repeated dips will deepen the color.

The not-very-pleasant smell will disappear from your dyed goods with the final rinse (see Rinsing, Recipe #1).

Thanks here also to the Boston Area Spinners and Dyers, and to Fred and Willi Gerber.

Don't be surprised with any of these Recipes if your work fails to pick up color in the dyebath. It's not supposed to. The Indigo color doesn't bloom until air (atmospheric oxygen) has worked on the Indigo infused fiber. Magical, truly it is.