



Indigo

SAFE COLOURS for TEENS

(and Children with Adult Supervision)

YOUR KIT INCLUDES:

4 oz very finely ground pure **natural Indigo**.

Natural Indigo is processed from the *indigofera sp.*, raised as a naturalized cover crop in India and Pakistan, Southeast Asia and southern China. The plants are fermented to create the blue dye. The dry dark blue cake or finely ground powder has been an article of trade for at least 5,000 years.

12 oz "**Washing soda**", Sodium Carbonate, also called Soda Ash.

DANGER! Strong alkali, can irritate sensitive skin. **ALWAYS WEAR "RUBBER GLOVES"** (latex or vinyl, thin or thick as you like), when handling the washing soda! (As well as when dyeing in the Indigo solution)

The Indigo needs to be dissolved in a strongly alkali solution. Otherwise it won't penetrate into the fiber; it would be just a stain on the surface.

2 oz **Madder** root, ground.

Madder root contains an enzyme that causes fermentation. This ferment liberates hydrogen, which grabs onto the oxygen of the Indigo molecule. They join to make water, while the de-oxygenated, or "reduced" Indigo can now dissolve in the alkali solution. In this very fine form Indigo becomes small enough to enter into the spaces of the fiber we want dyed.

Note that Indigo does not chemically combine with the fiber. Nor does it combine with any mordant (which is why no mordant affects the color or quality of Indigo dye). It is instead held in an electro-static bond within the interstices of micro spaces inside all natural fibers.

2 oz **bran**. This organic-grown wheat bran provides the sugary food for the fermenting enzymes of the Madder.

Included is also a small additional packet of bran and madder, mixed. Use this to "re-charge" the vat after a day of dyework.

SOMETHING SPECIAL TO DYE. Five, 11" squares of: cultivated white silk; wild beige Tussah silk; an OG (Organically Grown) cotton twill; an OG soft hemp; and a fine Pendleton natural wool. Each fiber dyes its own special hue of natural Indigo blue.

INSTRUCTIONS. Simplified instructions are in this packet, while more elaborated instructions are printed on blue paper. **Note that it takes about a week for the natural**

fermentation vat to be ready to dye. It should be stirred gently once a day during this fermenting process.

AMOUNT of material you can expect to dye: this varies so much by fiber and color depth. In addition to the five squares of different fabrics enclosed, you can expect to be able to dye approximately two medium, all cotton t-shirts to a medium dark blue, plus several others to a lighter blue. Allow several days for dyework: dye a small amount each day, then let the vat rest and recharge overnight.

OTHER EQUIPMENT NEEDED:

A VAT. This can be a pot of stainless or unchipped enamel. Or it can be a plastic **bucket** or garbage bin. It must have a well fitting **lid**, preferably a domed lid that can be set on upside down. The idea is to reduce the air space above the dye. **Oxygen is the enemy of the Indigo vat!** Some dyers float a layer of plastic film on the vat's surface.

For the amount of dye included in this kit, a small vat in a two or three gallon bucket or pot is good. Be sure to fill it as full as possible, leaving just an inch or so to accommodate the material when you dye it.

HEAT. Not as easy to figure out, because the temperature has to be kept just right. Warm, but not hot. Hand warm, lukewarm, baby bottle warm, yogurt making warm, bread rising warm, chick incubating warm, iguana raising warm, chameleon breeding warm, orchid raising weather. In the tropics, one only has to keep the pot in the shade. In the summer, in many places, that works. Just don't let the sun heat the vat directly, as it can get way too hot way too fast.

Most effort is in how to keep the vat warm and happy when it is winter. When I first started, I took a cardboard box that was big enough to be roomy for the size pot I had. I lined it with aluminum foil and put in the pot. Two sticks across the top of the open box formed a resting place for a simple aluminum light reflector and a sixty watt bulb. A bit more foil covered the open spaces between the reflector and the box. To adjust for temperature was as easy as removing the extra foil.

TOO MUCH HEAT WILL KILL THE FERMENT. This is the most common reason for Indigo vat problems. A vat that's a little cool will ferment more slowly, but it will ferment. One that gets too hot will stop fermenting. It can usually be saved by letting it cool down, then adding more of the fermenting Madder root and bran.

FORTITUDE! PERSERVERANCE FURTHERS! Indigo vat is Art as Process.

HISTORY: Creating an Indigo vat is to partake of a long history. To get a blue dye from a fermented plant was one of the earliest discoveries of people. Then, to make it into dry cakes and trade it around: Indigo was one of the earliest articles of commerce. There are as many Indigo fermentation recipes as there are cultures, for every culture has had its Indigo, and every one its own way of coaxing out the color.

This recipe is the standard European vat. It has a history of several thousand years, and was perfected in its present form when Indigo was not only dyed in each and every farmhouse, but was dyed on a large scale in the great industrial natural dye works of England, France, Germany and New England.

SAFETY FOR SMALL CHILDREN:

While this Indigo is the same that is used as an insect repellent and skin cure-all in those countries where it is grown, it is wisest to keep these and all dyes and assists (especially the Washing Soda) **OUT OF THE REACH OF CHILDREN.**

This kit can safely be used with children, under **ADULT SUPERVISION.**
SAFE FOR TEENS, 12 and above.

ALWAYS WEAR “RUBBER” (vinyl or latex, thin or thick) GLOVES when doing dyework. Do not drink or eat the dye. First aid for splashes in the eyes is to rinse well with tap water. (It’s like getting soap in your eyes).

RE USE YOUR VAT: This Natural Fermentation Vat can be “put to sleep” and stored. Simply let it get cool. When you are ready to “recharge” it, add all the ingredients in the same proportions and follow the same steps. Your Indigo Natural Fermentation vat can continue to be used this way forever.

TO DISPOSE: Used dye solution can be safely poured down the drain, with water to dilute the alkalinity (washing soda is a common additive in household laundry detergents). The rinsed solids can be added to the compost bin or used as mulch.

PUDDING PAINT: You can also use the blue liquid to make a child safe finger or poster paint. Strain the liquid, and mix with cornstarch or white flour to thicken. Depending on how thick you want it, try 1 Tablespoon to a cup liquid. Heat the solution to a boil, stirring with a whisk. I call this “pudding paint”. It makes beautifully textured sky blue walls when applied with a sponge.

ENJOY!

“Generally speaking, with Natural Dyework, the longer you take, the better the result”
- from an old dyebook

RENEW your Natural Fermentation vat with supplies from www.aurorasilk.com

SIMPLIFIED INSTRUCTIONS

for the Natural Fermentation Indigo Vat:

A week before dyeing, “set the vat”: fix a warm place for your dyepot, add the ingredients to warm water in your pot, stir gently, cover and keep warm.

Stir gently each day. Check the temperature so it doesn't get too warm nor too cold. Adjust the heat source as needed. Always replace the cover on the vat.

When there is a coppery film over the surface of the dye, it is probably ready. To be sure, test dye a small bit of something. Wet it out, dip it in the vat, hold it under the surface for a full minute, then remove it and see if it is greenish, turning blue in the air.

When the vat tests ready, prepare your materials to dye. Be sure they are well wet out in warm water. It is good to leave them to soak overnight, and squeeze all the air out before you put the material in the dye.

WEAR GLOVES! Thick or thin, vinyl or latex, your choice, but please wear them! Take the moist material, lay it in the vat and “work” it with your gloved hands **UNDER THE SURFACE OF THE VAT**. Think of air as the enemy of the vat, so do not let bubbles form, or lift the material in and out of the liquid. “Work” it means, move it around and squeeze dye liquid through it, always under the surface.

Chant a song or read the funnies, after 4 or 5 minutes bring the material out of the vat and squeeze out excess dye liquid. It should look vibrantly green. It will start to turn blue in the air. Lay it out on some clean newspaper or plastic sheeting or pin on a clothesline to air.

Let air for 20 to 30 minutes. If not as dark as you like, re-dip in the vat, as before. When it is dark enough, after a final 20 to 30 minutes of airing, rinse well. Remember, it will be lighter when rinsed, and lighter still when dry, especially silk, which lightens so much because of its sheen.

If possible, let the dyed and rinsed materials air overnight. Then the next day, let soak for 30 minutes, then rinse well again. This double rinsing ensures that all the alkalinity of the washing soda is removed. Never soak or rinse Vat Indigo in vinegar or other acid. That will damage the durability of the colour, making it less fast to light and washing.

To renew the vat after a day's dyeing, add the contents of the madder-bran renew mix, stir gently, cover and continue to keep warm, stirring gently every day. In two or three days the vat will be ready to dye more blues.

When the vat is exhausted of dye value, it can be kept going by re-adding all the four ingredients: Indigo, washing soda, bran and madder. In this way I have kept my current vat for 18 years. May yours also “Live long and prosper”.