Directions for using Fiber Reactive Dyes (cellulose)

1. Wind warp, tie loosely using figure eight ties to secure. Use a different size and fiber as ties to help in straightening warp out after dyeing and rinsing. Tie a heavier cotton yarn around Top and bottom of warp and in the crosses. This is used to keep warp from tangling in dye bath. I tie a stick in the two ends to help with handling.
2. Weigh the dry warp – this becomes your Weight of Goods (WOG) record it.
3. Wet out yarn in hot, soapy (synthrapol or dish soap) water for 30-45 minutes.
4. Mix stock solutions in amounts needed with urea water. You need about 1/4 cup urea per quart of dye solution for tie-dye mixtures, and about 3/4 cup per quart of chemical water for direct application. Urea is a dissolving agent and humectant. Not needed for vat dyeing.
5. Dye Stock solution is: 1 gram dye powder to 100 ml of urea water. This is approximately (1 teaspoon dry powder to 100 ml water for a 1% stock solution). Mix your custom dyes using formulas given. See Note at Bottom of page.
6. Gently squeeze excess water out of warp – there is no need to rinse it.
7. Mix washing soda (pro chem activator) in water (20/1 ratio) at 15% WOG. Soak warp in it for at least 10 minutes
8. Mix colors to be painted by using this formula: $\dfrac{WOG \ x \ DOS}{\% \ stock \ solution}$
9. For example: $\dfrac{100 \ grams \ X \ 3\% DOS}{2 \ \% \ stock \ solution}$ = 150 ml dye
   divided by
10. Organize your applicators, dye containers and put on safety gloves and apron. On long table, sidewalk or floor covered in painter's plastic spread out warp to be painted.
11. After Painting wrap up in plastic and put in as warm a place as possible to fix for minimum of 24 to 48 hours.
12. Remove yarn, (chain loosely) squeeze under hot soapy water to remove as much dye as possible. Do this several times changing the water until it runs clear.
13. Add small amount of vinegar to last hot soapy water rinse. Add yarn and let soak for 3-4 minutes. This neutralizes the PH of the yarn. You can also add hair conditioner to help untangle.
14. Remove yarn from water and rinse in hot water one more time. For large amounts you may use a washing machine at this point with a capful of Synthrapol, but do not allow it to agitate just cover with water and spin out.
15. Spread warp out to dry. Try to untangle as much as you can.

Stock Solution

A 1% stock solution works well for a medium value for most dyer's needs. The strength of the stock solution is the ration of the dye powder to the volume of water, expressed in percentages. For example: 1 gram of dye powder dissolved in 100 mls of water is equal to a 1% stock solution strength:

1% stock	1 gram dye powder	100 mls of water	Light Values
2% stock	2 gram dye powder	100 mls of water	Medium Values
3% stock	3 gram dye powder	100 mls of water	Dark Values
5% stock	5 gram dye powder	100 mls of water	Black's

#310 Basic Red weight per teaspoon is 3.5 grams
#108 Sun Yellow weight per teaspoon is 3 grams
#400 Basic Blue weight per teaspoon is 4 grams

Pro MX Fiber Reactive Dyes: Characteristics

- Cold water dye: between 105 F and 120 F

- Extensive color palette. Good choice of primaries.

- Colors are brilliant and higher in tinctorial strength than Sabracron F

- Excellent lightfast qualities: however, it takes much more washing to remove the excel dye.

- A good choice of dyes for silk if resist work with wax or paste is a consideration.

- Level dyeing with Pro MX Fiber Reactive dye is not as good as with Sabracron F series. The salt must be added in three increments over 15 minutes to insure even color take-up especially with silk.

- Does not exhaust evenly across all dyes; certain colors will strike immediately and others late into the dyeing period.

- Stock solutions cannot be stored. Much dye is lost to hydrolysis which occurs as soon as the dye and the water mix, and at high temperatures.

- Salt at 50% to 100% WOG is used as a dispersing and levelling agent; washing soda or soda ash at 10% WOG is used as the fixative on Plant Fibers.