TELANA POWDER DYES

Telana Powder Dyes are a combination of reactive and premetalized dyes. For the fiber artist whose work demands the use of a dye which provides both high wash and lightfastness across the entire color spectrum, these dyes are an invaluable addition. Telana stands up to some of the most rigorous standards, making it a natural for felters and silk dyers. Tapestry weavers and those who create textiles for interiors will like the high lightfast rating as well. It produces rich jewel-like colors, while leaving the sparkle and hand intact (violet and black on silk are stunning). In addition to wool and silk, Telana will dye a myriad of fine fibers such as angora, cashmere, qiviug, fur, etc. Telana will also successfully dye nylon (although nylon is a synthetic, chemically it is similar to animal fibers). They are easy to apply, and with the rapid fiber penetration, dyeing time is shortened. The Telana dyebath almost completely exhausts making it a very economical dye. Telana Powder Dyes may be used for both immersion dyeing and direct application.

Fiber Types
- wool (including Cashmere, Qiviug, Angora, Alpaca and other protein fibers)
- silk
- fur
- nylon

Techniques
- high temperature immersion
- direct application (including handpainting, screenprinting, and warp painting)
- batch dyeing (rainbow dyeing, tie dyeing, bound resist)

Colors Available
Yellow, Gold Yellow, Scarlet, Red, Magenta, Black, Turquoise, Royal Blue, Violet, and Navy.
What You Will Need
Stainless steel, enamel, plastic or glass containers for measuring, mixing, and dyeing. Do not use galvanized metal or aluminum for mixing or storage.

MASK and GLOVES

56% ACETIC ACID – used to set the dye and establish an acid dyebath between 4.5 – 5, which is the range where fiber damage is minimized and maximum dye exhaustion occurs.

SODIUM ACETATE – used to maintain the pH of 4.5 – 5 during the entire dyeing time. It is also a buffer which helps to keep the fiber soft and damage free.

GLAUBER’S SALT – serves as a leveling agent by dispersing the dye evenly throughout the fiber.

TELANA SET – developed by Ciba Geigy for use with the telana dyes to aid in leveling. Telana Set promotes even exhaustion by slowing down the rate at which the dye moves towards the fiber.

WATER – is the medium which carries the dye. You will need to know the pH of the water used before dyeing to determine the base level of acid or alkaline before adding any chemicals to change it. Various quantities of water are used based on fiber weight.

SCALE – gram scale is very handy to weigh dyes and chemicals.

pH PAPER – available at chemical supply houses or pool suppliers.

TELANA DYE

INSTRUCTIONS

Safety In Use
Although no chemical is entirely free from hazard, these products will present a low to no health risk, provided that good standards of studio hygiene are observed in their use and storage. All persons handling them should take precautions to avoid accidental ingestion, inhalation, skin and eye contact and should be aware of any limitations of use of specific products. While dyes and the chemicals associated with their use are not highly toxic, they are industrial chemicals and should be handled with care. Chemical products should not be allowed to get into the eyes, but if they should by accident, wash eyes with clean water and then obtain medical treatment. Prolonged or repeated contact with skin should be avoided. Wear rubber gloves and use implements to stir solutions and dyebaths. Inhalation of dusts should be avoided by careful handling of powders. If the dyes are handled where particles may become airborne, a suitable dust respirator should be worn. Obviously, chemicals should not be taken internally, and the use of food, drink and smoking materials should be prohibited where chemicals are employed. The utensils used for dyeing should not be used for other purposes (eg, food). A final suggestion: Children and animals are naturally curious. Do not leave open jars or bottles where little hands and paws can get to them.

Preparation The Fiber
Scour the fiber thoroughly and keep wetted out prior to dyeing. Use 1 Tbsp. Orvus Paste to 4 liters of water. For fibers like silk this neutral detergent is simply acting as a wetting agent. For raw or spun wools with lanolin, grease, and/or oils, this is a good cleaning agent. For fibers such as mohair, this, along with washing soda, is needed to completely scour.

Recipes For Dyebath Method
Because telana dyes will store in liquid form for up to 6 months, it is easier to work with them in stock solution when immersion dyeing.

Preparing A Stock Solution
A 1% stock solution is standard. This is done by dissolving 1 g. of dye into 100 ml. of water. Sometimes a more concentrated solution is desired as in the case of handpainting. For such creative uses try a 2% stock solution: 1 g. of dye dissolved in 50 ml. of water. For black, use a 4% stock solution.

NOTE: The Yellow 4G is difficult to keep in solution due to its apparent low solubility in water. One suggestion is to dissolve the dye in hot water with a drop of Synthrapol, stirring constantly. Stir again as the solution is being drawn up for the dyebath.
Depth Of Shade

The depth of shade (DOS) indicates how much stock solution is needed per specific weight of fiber to achieve a color value ranging from pale (1.15%) to very deep (3%). The DOS required will vary with different fibers. NOTE: A 5% DOS is needed for black.

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\text{eg: WOF (weight of fiber)} \times \text{DOS} = \text{Total volume stock solution needed. (this can be divided between one or more colors)}
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\begin{align*}
\text{SAMPLE:} & \quad (\text{grams of fiber}) \quad 150 \\
& \quad \times 2 \times (\% \text{ DOS}) = 300 \text{ (ml of stock needed)}
\end{align*}
\]

Water Ratio

This is the ratio between the weight of water used in the dyebath and the weight of dry fiber. This range includes: 30:1 for most wools and bulky fibers that take up a lot of room in the dye pot; and 40:1 for silks and other fibers difficult to dye evenly (eg: 30:1 means 30 times as much water by weight is needed as yarn or fabric to be dyed).

Formulations

<table>
<thead>
<tr>
<th>Fiber</th>
<th>Water Ratio</th>
<th>Acetic Acid</th>
<th>Glauber’s Salt</th>
<th>Sodium Acetate</th>
<th>Telana Set</th>
<th>Time up to Temp.</th>
<th>Temp. Range</th>
<th>Time at Temp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wool</td>
<td>30:1</td>
<td>4% WOF</td>
<td>10% WOF</td>
<td>1% WOF</td>
<td>1% WOF</td>
<td>30-50 min.</td>
<td>212 F</td>
<td>20-30 min.</td>
</tr>
<tr>
<td>Mohair</td>
<td>40:1</td>
<td>5% WOF</td>
<td>10% WOF</td>
<td>1% WOF</td>
<td>1.5% WOF</td>
<td>60 min.</td>
<td>185-195 F</td>
<td>15 min.</td>
</tr>
<tr>
<td>Silk</td>
<td>30:1</td>
<td>4% WOF</td>
<td>1% WOF</td>
<td>1% WOF</td>
<td>1% WOF</td>
<td>30 min.</td>
<td>212 F</td>
<td>20-30 min.</td>
</tr>
</tbody>
</table>

SAMPLE: for 150 g. silk

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\begin{align*}
\text{Water} & \quad 150 \times 40 \\
\quad & = 6000 \text{ ml.} \\
\text{Acetic Acid} & \quad 150 \times 4% = 6 \text{ ml.} \\
\text{Glauber’s Salt} & \quad 150 \times 5% = 7.5 \text{ g.}
\end{align*}
\]

\[
\text{Telana Set} \quad 150 \times 2\% = 3 \text{ ml.} \\
\text{Sodium Acetate} \quad 150 \times 2\% = 3 \text{ g.}
\]

Dye Procedure

1. Weigh and record dry fiber weight.
2. Scour and wet fiber. (see “Prepare the Fiber”)
3. Calculate formulas from above charts.
4. Place amount of water (from water ratio formula) into dye pot and begin heating.
5. Add chemicals and stir well. Check pH level and adjust accordingly.
6. Add wetted out fiber and stir. Allow to soak for 10 minutes.
7. Pull fiber to one side and add dye (previously figured out from DOS formula).
8. Hold dyebath at approx. 120 F. for another 10 minutes. Gradually raise temperature according to above chart.
9. Once at temperature, hold according to above chart.
10. Allow to cool slightly in dyebath. Then, remove fiber to sink or bucket to cool completely.
11. The rinsing, after dyeing with telana, is easy. Usually one wash with mild soap (Orvus Paste) and hot water will remove any excess dye. Follow this with a final rinse in clear water. This last rinse will return the pH of the fiber to a neutral (pH7).
Direct Application Method

Direct application of telana produces some wonderful and very interesting effects hard to achieve in the fiber reactive dyes. Telana does not migrate much, allowing for defined design areas. Also with telana, it is possible to layer one color over another without disturbing the bottom color. This creates wonderful translucent effects.

1. Prepare a 3 - 5% stock solution. (See chart on previous page.)
2. Add acetic acid and sodium acetate. (See chart on previous page.)
3. Be sure to check the pH level of the dye stock solution. It should be in the range of 4.5 - 5 pH. If the dye stock solutions are to be stored for any length of time, the pH level should be rechecked and readjusted before use.
4. Dye stock solutions may be stored for up to 6 months with minimal color loss.
5. The dye stock solution may be thickened with Sodium Alginate, and should be thickened just prior to use. To 1 liter (4 cups) of water, add 10 to 30 g. (2-6 tsp.) Sodium Alginate (depending on desired effect).
6. Telana dyes that have been directly applied need to be steam set for 15-20 minutes.

Batch Dyeing

Batch dying, rainbow dyeing, tie dyeing, and sprinkle dyeing are all names for the same process of getting many different colors onto one set of fiber. This process may be used on unspun fiber, yarn, or cloth (in lengths or made into clothing).

1. Scour and wet out fiber.
2. Soak in a vinegar and water bath with a pH of 4.5 - 5. This will take about a tablespoon per quart of water. Check with pH and adjust if necessary.
3. Use a 3-5% dye stock solution. (See chart on previous page.) Use as many colors as you desire.
4. Remove fiber from vinegar soak and gentle squeeze out excess water. Lay in a non-reactive baking pan (stainless steel, enamel, or glass). Arrange the fiber as you like: eg: fold, tie, twist, spiral, zigzag, etc. Apply the dye with a brush, squeeze bottle, pipette, or by pouring. Pour off excess dye from pan.
5. Carefully place pan in cold oven. Slowly heat to 190 F. and hold there for 60 minutes. Watch that the fiber remains wet enough and does not scorch. Turn oven off and leave pan in to cool slowly. Rinse as above.

Setting the Dye

Telana dyes which have been directly applied require steam fixing to make them colorfast. Ideally, for consistent results, this should be done in a steamer.

A canning kettle with a rack makes an excellent steamer, or a larger one may be made from a garbage can (see our Steaming data sheet). After the fabric is completely dry, roll it in a piece of newsprint to form a tube. Roll the tube so it becomes a doughnut, tie the roll securely but not tightly. (Yarn may be wrapped in Saran Wrap insuring no two areas are touching.) Place the canning rack in the kettle and fill with water to 3/4" below the rack. Bring water to a simmer. Cut six pieces of newsprint in circles 1" smaller in diameter than the kettle; place three of them on the rack. Add the fabric bundle. Add three more pieces of newsprint. Insure that none of the newsprint touches the walls of the kettle; it is essential that condensation does not drip onto the paper and then the fabric. Cover the kettle with a towel and allow fabric to steam for 15-20 minutes. Remove bundle and unwrap immediately.

Final Wash Off

The rinsing, after dyeing with Lanaset, is easy. Usually one wash with mild soap (Orvus Paste) and hot water will remove any excess dye. Follow this with a final rinse in clear water. This last rinse will return the pH of the fiber to neutral (pH 7).

Being an exhaust dye, very little dye remains in the dyebath after processing. To dispose of responsibly, simply flush with cold water.