Discharge Printing Step by Step

SEPTEMBER 25, 2006 -- With end-users once again gravitating to soft hand prints, water-based discharge printing is back in fashion. Here's step-by-step instructions that show you every process of discharge printing.

**Step 1.** Weigh your mixing container prior to adding any chemicals, record the weight (inset) and take the scale back to zero before adding components. All formulas should be based on weight and not volume.

**Step 2.** Add discharge base to the container and record the weight.

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Step 3. Add an activator, in this case ZFS (zinc formaldehyde sulfoxolate), to the base to intensify the color, making sure it is fully dissolved. You will usually add up to 8%, but start with a lower percentage and run tests, adding more until it stops intensifying the color. For best results, mix only enough to be used in 24 hours. Beyond that amount of time, the mixed ink will start to lose its vibrancy.

Step 4. Add up to 10% urea, which is a commercially produced humectant, a chemical that helps ink retain moisture. (Humectants are common ingredients in everything from processed foods to cosmetics.) The longer the discharge ink stays wet in the dryer, the more vibrant the resultant colors. Some ink companies recommend a lubricant for the same purpose, but either chemical works well.
Step 5. Penatrant helps the ink get down into the fabric for richer colors.

Step 6. Pigment can be added to make colored discharge. Usually, 12% is as much as should be used, although some manufacturers use up to 15% for printing whites.

Step 7. To print with discharge, use medium to dark colored garments.
Step 8. Print the first color using a heavy stroke to make sure the ink penetrates the garment, followed by a light stroke for good surface deposit. Flood the screen before going on to the next color. Color order doesn’t matter, but it’s always best to print the darkest colors early and working towards white last so it is most vibrant.

Step 9. On press, the print will often look like a stain of wet color, especially when printing discharge base without pigment.
Step 10. A flash is not needed between colors, but flashing after the last color will help keep the pigments on the surface and result in a brighter, more vibrant print. Flashing the print on press prevents the ink from discharging fully, which can leave an interesting effect.

Step 11. A finished, fully discharged print.