



How to Print: Water Base Inks and Discharge

TESTING FOR DISCHARGEABILITY OF THE GARMENT:

Water base products, unlike plastisol, are transparent. Therefore, before we do any printing or color matching with discharge inks, we have to first know what our background garment color is. To perform this test on the garment that is to be printed; follow these steps:

- 1) Make up a stock discharge base by using 94% discharge base and 6% activator. Mix with a drill or hand held blender.
- 2) Print onto the inside of the garment, near the hem, with the same screen mesh you would use in production. A 1x1 or 2x2 inch square is sufficient. Cure as normal.
- 3) If, after curing, you achieve an off white or creamy color, your garment should be considered acceptable for discharge.
- 4) If there is a hint of color remaining on the printed area then your garment IS NOT fully dischargeable. This would not be acceptable if you were only doing a straight discharge print. Also, even if you are adding color to your print, the remaining shirt tint could create problems when attempting color matching on the garment.
- 5) If your garment is as described in number 4 above, you may want to contact the manufacturer for further information regarding dye selection on your particular garments.*

**Dye Selection: All Dyes, whether Direct dyes or Reactive dyes, are rated for "dischargeability". The rating applied to these dye classes is a 1 to 5 rating. The higher the number, the better the "dischargeability" of that color. Reactive dyes will respond the best overall, however, not all dyes within the same classification will work, and how effectively they discharge will change with each rating. Check with the manufacturer for these specifications.*

TESTING THE GARMENT FOR PRINTABILITY:

After testing for dischargeability of the garment the next thing we need to test for is, whether or not the garment contains any silicone. Silicone is used by fabric dyers to soften up the fabric after chemical processing (dyeing, etc). To test for this, simply drop or splash some water onto the top of the fabric. If it penetrates/is absorbed readily, then proceed with printing as normal. If the water beads up on top of the fabric it, more than likely, has a silicone barrier. This barrier may be enough to keep the ink from penetrating the fabric and adhering to the fibers of the fabric. To get around this barrier we recommend the addition of WB-PEN, which is a penetrant (please follow instructions in the WB-PEN data sheet). This will allow the ink to drive past the silicone and bond with the fabric as normal. However, depending on the level of silicone softener on the fabric this may have a reduced effect. As a result, we strongly recommend washing any test print prior to production to assure adhesion of the ink.

PREPARING THE INKS FOR USE:

When mixing discharge inks for production, we recommend mixing only the amount needed for one shift. If you want to prepare a large batch of ink for a job that will run several days or as a stock color, we recommend mixing the ink color but do not add the DIS-ACT Activator at that time. Wait until an amount of ink is needed and activate that amount at that time only. Keep your containers well sealed to avoid evaporation and thickening of your inks. Always remember to add the Activator last, after you have mixed together all your other components. Once an ink has been activated for over 8 hours, do not reuse it. Dry it out and dispose of it properly.

When adding pigment to your base, it is important to remember not to exceed 6% by weight. This will keep the ink from crocking and ensure wash fastness of the ink to the garment. Crocking is the act of rubbing/removing the color off of the print area. If you do exceed 6% pigment by weight, you need to add WB-BNDR Binder at a 2:1 ratio to pigment. This will help ensure the wash fastness of the print. Example: You add 12 grams of ink to 100 grams of base. You have exceeded your pigment load by 6 grams. You now need to add 12 grams of Binder to complete your ink. And as always, do not add the activator until these components have been mixed in.

SETTING UP YOUR PRESS FOR DISCHARGE PRINTING:

Always make sure to use a water resistant stencil when printing standard water base. When printing Discharge inks, you need to make sure the stencil is also designed for discharge inks. Check with your emulsion manufacturer as to which of their products will be best for you.

Always flood your image after your print stroke to ensure minimal drying in of your image area. On an auto you will want to set up your press to do a print/flood stroke. It is best to run your press with no flash units as this will accelerate the drying in process and evaporation of your inks. If necessary, you can run with a flash unit. Just make sure to leave several open print heads after the flash to allow the pallet time to cool off. Also make sure to have an employee check on the ink in your screens more often and mist the ink as necessary to rehydrate the ink if you find it evaporating quicker than normal.

Soft squeegees are recommended. Either 60 durometer or 60/90/60 are best. Some printers have great success going as high as 70 durometer. Always test what will work best for you in your shop.

DURING THE PRODUCTION RUN:

Continue to check your approved production sample against current production throughout the run. As time goes on, water in the inks will begin to evaporate and the activator will be losing strength. This can contribute to color shifts and ink drying in the screen mesh.

Make sure the garments are well cured. If your conveyer dryer is not long enough you may have to pass the garment through 2-3 times. Each dryer is different, and each design puts different stress loads on the dryer. So each job will cure differently. Make sure you are satisfied with the cure test before production and check for curing periodically throughout production. While printing, do not allow garments to air cure as that will keep the print from properly discharging. The design must be wet upon entering the dryer to discharge completely.

**Please remember that it is crucial during the cure process to completely evaporate the moisture from the garment and ink layer in order for the ink to fully cure.*

**Also, do not stack your shirts HOT while coming out of the dryer. If they were not cured properly, or cooled off enough, they may transfer the print to the back side of the garment and sometimes even penetrate through. This is known as ghosting.*