



Plasticharge Additive (DSPCH-9070) Instructions and Troubleshooting

Discharge Printing is a procedure to screen print an ink onto a dark T-shirt that will remove the dark color of the garment and replace it with a color of choice in one step or remove the dark color only with a discharge clear and print additional colors with later steps.

Plasticharge Additive (DSPCH-9070) is a water-based clear that is combined with a plastisol colored ink to form a hybrid (water-base/plastisol) ink that will discharge the original color from the underlying fabric while simultaneously printing the desired new color in a single operation.

Note: There is also a premixed Plasticharge White product (DSPCH-1000) that already contains the plastisol component (white). Please see related Instruction sheet for using Plasticharge white.

1. Not all garments will discharge. They must be “reactive dyed” and natural fiber (100% cotton). At the present time, most name brand 100% cotton shirts will discharge. There are a couple of dye colors that have historically not done well with the discharge process. These are Royal Blue and Kelly Green. However, recent tests have indicated that this situation is improving and varies from manufacturer to manufacturer. A Kelly Green shirt from a major mill did discharge beautifully. It is up to the printer to make sure that the fabric for a particular print run is dischargeable before production begins. We suggest that you do not commit to using discharge on customer-supplied garments until its suitability for discharge has been determined.
2. Plasticharge is a hybrid product that combines a waterbase discharge base component with Plastisol inks providing the color. The two components should be blended at the recommended ratio of 50/50 by weight. This ratio will ensure maximum color accuracy and coverage. However, you may choose to alter this ratio according to the desired effect. Excellent results have been achieved by adding as little as 15% plastisol color to the formula. A higher ratio of base to plastisol will result in a softer finish. This step can be done well in advance of production as pot life only begins to diminish after the addition of the activator powder (9ZFS)
3. Technically, any Plastisol can be used to provide the color. However, it is important to remember that the intensity of the color is going to be diluted by the 50% plasticharge additive component. Therefore, by using a high opacity color to start with, the end result will be a more accurate replication of the original Plastisol color. Union Ink recommends either Maxopake or Mixopake for the Plastisol component. Test results with these inks have, in most instances, resulted in excellent color matches. Even Pantone simulation matches are possible when utilizing Mixopake Pantone simulations as the Plastisol component.
4. To activate plasticharge you must add 6-8% ZFS (zinc formaldehyde sulfoxolate) just before putting the ink in the screen. Some garments will discharge fully when as little as 5% of this activator is introduced. The point here is, in the case of 9ZFS “less is best” we suggest testing the garments to see if a lower percentage of this additive is feasible. Technically, the pot life of the ink at this point is approximately eight hours. However, a good practice is to work in 1-2 hour increments and only activate enough ink to cover that time period. On a longer run, the repeated addition of fresh plasticharge to the screen will help to keep the process working at peak efficiency.

5. It is important to use a high quality water resistant emulsion and possibly a screen hardener on all of the screens used on a plasticharge run, even if you are only printing a plasticharge underbase. All of the screens will touch the plasticharge underlayment during printing and breakdown will occur if the proper screen preparation, coating techniques and emulsions are not used. Please contact Union Ink or your emulsion manufacturer for suggestions.
6. Recommended screen meshes for this product are approximately 110-180 (43-71metric)
7. It is not necessary to flash Plasticharge. Even when used as an underbase, Plasticharge can be printed on immediately with regular Plastisol. If the job would normally have a second flash later in the print sequence, this flash can still be utilized to help keep the image sharp.
8. Discharge is a steaming/extraction process. It is very important to not cure the print at too high a temperature. Longer dwell time is more important than higher heat. It is recommended that when any project first starts, run two prints down the dryer. Immediately run one of them through again. Now, compare the two prints. If the prints look the same, the dryer is set perfect. If the one that went through twice looks better, slow the dryer and repeat the test until they match.
9. Remember, in the curing process, there is a plastisol component that still has to cure at 300 – 320 degrees F. So, in addition to steaming the water out to make the discharge function work, it is also necessary for the ink film to reach cure temperature. With the water evaporation taking place, the plastisol will not reach cure temperature until the discharge process is complete. A test for complete cure is highly recommended.
10. Printers must make sure that they do not have any discharge ink on their fingers when they are loading or unloading garments. If any ink gets on the shirts, it will discharge where they touched it and the garment will be ruined.
11. Left over ink will not discharge well after eight hours. However, the ink can still be used to print light garments that do not require discharge. Make sure to keep any inks tightly capped in order to prevent contamination and evaporation of the water component.

Trouble Shooting Discharge Prints

Print has dark and light areas – discharge not finished, moisture still present, slow dryer belt speed.

Print looks weak, color intensity low – This can be caused by several things. If the print starts out looking weak, it could be that the mesh count is too high and not enough discharge ink is on the fabric. If the print starts out looking good and then fades, then the problem can be either the screen is starting to dry in (clog up) or the discharge ink is old and it is starting to lose effectiveness.

Ink has color streaks in it in the screen – Are the streaks the same color as the emulsion? Non-water resistant emulsion is the most common cause. The water present in the plasticharge will break down the emulsion in an hour or less. If you are just making a sample, regular emulsion will get you by, but for production, make sure to