

# How To Make Your Inks More Friendly

BY ROGER L. JENNINGS

**H**ave you ever opened a can of plastisol ink to find it thick and gummy like peanut butter? Such ink will not pass easily through the mesh and will wear you out printing, but they can be converted quickly to more friendly inks that are easy to print.

First, it will be helpful to understand how inks are formulated so that we know how to modify them.

## Three new friends

Stir and print a soft-hand ink (also known as base, extender base and other terms); there is no pigment in such ink, and it stirs and prints very easily. Next, stir and print a process ink. Again, the ink is easy to work with, but offers a *little* more resistance. General-purpose inks offer more resistance still. Opaque inks such as athletic inks, polyester inks and inks specifically formulated for dark garments are often very stiff and difficult to stir or print. It turns out that, in large measure, ease of printing depends on the amount of pigment in the ink.

In your frustration dealing with stiff inks, you might wonder why the ink manufacturers make them that way. An automatic press printing, say, 500 shirts per hour is moving the ink 1,000 times an hour, and all that movement breaks ink down like the ink-mixing machines displayed at trade shows. If the ink does not have sufficient body (ie: stiffness) at the beginning of a job, it will become watery and unstable during a long print run. Thus is it, by necessity, less friendly to a manual printer or one *starting* an automatic-press run.

A manual screen printer has four ways to make the ink friendly. First, of course, is stirring thoroughly with a device such as the aforementioned ink-mixing machine. A variable speed electric drill with a spade

drill bit will accomplish this result. However, if you *do* use a drill, rotate the spade drill bit as slowly as possible, and cover the top of the can with cardboard, or you will be flipping ink all over the room.

Second, and my favorite, is blending. Blending means taking 75-80 percent of the ink required for the job from the heavily opaque ink can, and 20-25 percent from another can of the same color, but only a medium-opaque ink. This dilutes the pigment percentage without changing the color or upsetting the chemical balance of the ink. Blending will make ink friendly. Do not exceed 25 percent, though, or the ink film may begin to lose the opacity you are looking for.

The third option is to mix 20-25 percent soft-hand clear with the heavily pig-

mented ink, but this procedure definitely reduces opacity. Accordingly, this option should be used for light colored garments only, not darks.

## With friends like that . . .

The fourth and clearly least desirable option is to add curable reducer. Reducer is plasticizer. Plasticizer is clear like water, and pours like a light oil. Reducer is very potent, and will have unfavorable results when used to excess. An ink manufacturer might tell you to add 10-15 percent of curable reducer by weight, but we recommend only 2-3 percent at most. Actually, only a few drops should be added per screen, and the curable reducer should be very thoroughly mixed into the ink . . . and only after attempting the three fixes



Pigment-rich ink, made for an automatic press: With the metal scoop an inch above the can, a substantial amount of ink is still connected to the source of ink in the can. When printing with an off-contact distance of 1/32", this ink would not shear well from the screen.

LOOKING FOR A BETTER  
WAY TO RUN YOUR SHOP?

**\$95** IS ALL IT  
TAKES.

\* Visit [www.t-quoter.com](http://www.t-quoter.com) for more details

**T-QUOTER**

SHOP MANAGEMENT SOFTWARE

**2.0**

Embroidery • Screen Printing  
Digital Garment Printing

**30 DAY**  
FREE DOWNLOADABLE TRIAL

[www.t-quoter.com](http://www.t-quoter.com)

877-622-3377

LEARN  
**CorelDRAW™ &  
Photoshop™**  
ON-LINE

Great for digital garment printers,  
sublimation and screen printers.

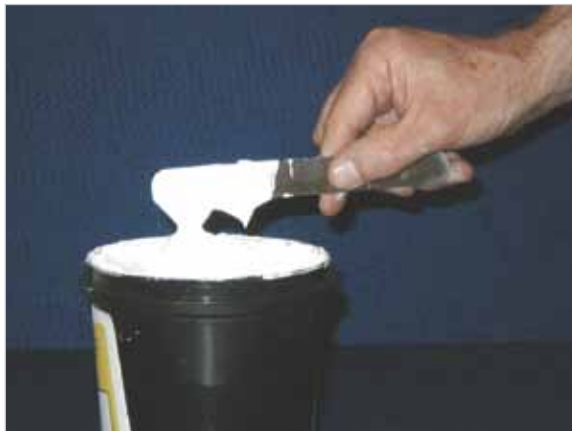
**DIRECT 2 SHIRT**  
THE ART OF DIGITAL PRINTING



[www.d2slearning.com](http://www.d2slearning.com)

Use FAST #81

## How To ...



Medium-pigmented ink has less pigment and is easier to stir: The metal scoop is barely out of the ink, and the bulk of the ink has run off the scoop. This ink shears very nicely, but does not have sufficient pigment for a bright image on a dark garment without blending with a pigment-rich ink.



Blended ink: Two white inks mixed—80 percent pigment-rich with 20 percent medium-pigmented ink—to attain the high opacity of pigment-rich ink alone, and the shear characteristic of medium-pigmented ink. Now the white is easy to print, and opaque. The same procedure can be used with other colors of inks.

The danger of curable reducer overuse is ink losing its cohesive characteristic. Curable reducer should not be used with process inks, because halftone dots break down and dot gain is the result. Fine lines and details spread out. The ink settles *into* the garment rather than sitting up on the garment, and the color of the garment can now be seen through the thinner ink film. As halftone dots flatten out, the image color might exhibit a muddy hue.

Curable reducer also promotes dye migration. Dye migration results in the

color of the garment tinting the ink color, and occurs with synthetic fabrics and synthetic blends such as 50/50 cotton/polyester shirts. Curable reducer is not recommended for synthetics, especially red, green and maroon garments, those colors being high-risk for dye migration.

Synthetics should be printed with “low-bleed” inks, also known as “non-migrating” inks. These inks typically are stiff and unfriendly. Stirring and blending are recommended to make them friendly. Since dye migration is initiated by heat, extra pro-

tection against it can be achieved by running the unprinted garment through the conveyor at a hotter temperature and for a longer dwell time than later when ink is on the garment.

#### **A friendly good-bye**

When printing off-contact, the mesh should pop off the surface of the garment after the squeegee passes, leaving the ink behind. Tight screens are always preferred over loose or soft screens, because a tight screen helps to shear, or cut, the ink. The

ink should transfer from the screen to the garment without leaving an ink residue under the screen.

A good test we employ on every job before putting ink in the screen is to pull the stir stick straight out of the ink while looking at how quickly the ink in the can separates from the ink on the stick. We want the experience to be similar to pulling a spoon out of yogurt. If the stick gets to six inches above the can and there is still a string of ink from the stick to the can, the ink is not shearing. We want to

avoid the taffy pulling experience.

As the screen is typically only 1/32-inch above the garment when printing, the ink in the screen must shear, or be cut from, the ink deposited on the garment when the screen pops off. Taffy-like ink will not shear. Inks that have been modified as above will shear more easily, regardless of viscosity.

A friendly ink shears easily, holds the shape of the image in the stencil and completely transfers from the screen to the garment. So now you know how to convert peanut-butter ink into friendly ink. **PW**

**HOWARD**  
*Sportswear Graphics Express, Inc.*

**CUSTOM HEAT TRANSFERS**

**SAME DAY SERVICE AVAILABLE!**

**Toll free:**

**866-695-8195**

**www.howardsportswear.net**

*Se Habla Español*

We manufacture our own inks in house to ensure the Highest Quality Heat Transfer! Including Opaque Optical White Hot Peel even on 100% Polyester Mesh Jerseys

Use FAST #79