

Successfully Merging Litho and Digital

WHO SHOULD READ THIS BULLETIN:

Anyone who specifies jobs that combine Docutech and conventional printing.

The merger of offset lithography with digital printing is a highly successful technique that maximizes the benefits of both technologies. Very striking and cost effective effects can be achieved by pre-printing "basics" or "shells" via litho, then imprinting these pages on the Docutech.

However, since Docutechs operate at high temperatures, care must be taken when choosing the correct litho ink for the job to be imprinted.

Frank Kanonik of the Graphic Arts Technical Foundation has developed criteria for proper ink selection. Below are excerpts from his article on the subject that appeared in the October 1998 issue of *Digital Impact*, a Printing Industries of America, Inc. digital printing newsletter.

Ink... the Vital Ingredient

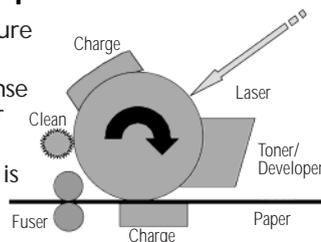
Ink is the most important ingredient in successfully merging litho and digital printing. Fortunately, there are many suppliers of litho inks which are safe for later imaging on toner-based systems.

Following are guidelines to help you select the proper litho ink.

The major consideration when choosing a litho ink is its ability to hold up to the intense heat and pressure inside a laser digital printer. The temperature of the fuser roller inside a typical digital printer can reach 400°F. This high temperature only occurs briefly, long enough for the toner to melt or fuse to the paper. But this high heat can also soften a conventional litho ink to a point where it will transfer and build up on the fuser roller. This build-up results in a ghost image appearing on later sheets that run through the digital press.

How Does the Digital Process Impact the Paper?

- Removes moisture from paper
- Subject to intense heat from fuser roller
- Grain direction is an issue
- Fuser oil



Inks that are formulated to withstand this high heat usually contain little or no waxes or resins. Waxes and resins are normally added to litho ink to improve their rub resistance and to resist scuffing in transit, but they will melt when they come into contact with the fuser roller.

Laser Safe Inks

These special inks are available from a number of suppliers and will usually contain "laser safe" in their names. These inks are also available for waterless printing presses, such as the Heidelberg QuickMaster-DI press.

Note: When using special laser-safe inks, a longer than normal drying time is required—usually 24 to 48 hours—but it will vary from supplier to supplier.

Lab Testing

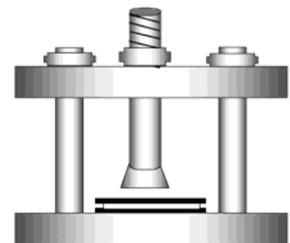
A "blocking" test can be performed that simulates the high heat and pressure of a digital printing press. Two pieces of paper with the "suspect" litho ink are sandwiched together—printed side to printed side—with 25 pounds of pressure in a device resembling an old style book press. They are placed in a 400°F oven for 30 minutes, then removed. If the sheets separate cleanly, the ink is deemed to be "toner safe."

Any litho-printed piece used on a laser digital

Blocking Test

Two samples of ink and paper are held under 25 pounds of pressure at 400°F for 30 minutes. If sheets adhere to one another, this indicates the resins are softening.

This test simulates the pressure and heat of the fuser roller.



printer is subject to these rules of proper ink usage, whether the piece is imaged with toner or simply inserted into a job. Any piece that passes through the fuser section is subject to intense heat and pressure.

Note: For information on Docutech imaging on coated paper stocks, refer to TechTopics No. 4.

General Information

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TechTopics

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Our Thanks

To the Printing Industries of America, Inc. for permission to reprint this article.

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