



TECHNICAL BULLETIN #14

LASER INKS

Printing forms and letterheads for laser printer output was once a process almost entirely dominated by the stock forms printers. Large computer equipment, such as IBM 3800, was used to print an individualized message on the pre-printed stock. In recent years, with the proliferation of office laser printers, as well as increased use of mass mailings of information updates, direct mail advertising and so on, the need to prepare material for possible laser printer output has expanded dramatically and is now coming to print shops large and small. Unfortunately, many of us in the industry are unaware of the special inks and techniques that should be used to prevent tracking and smearing when pre-printed materials are put through a laser printer. The printer should be aware of some fundamental guidelines before producing laser work.

Laser printing works by toner being distributed in place on a sheet of paper by electrical charges and fused in place by a roller maintaining temperatures of 375° to 400° F. On pre-printed stock, this same roller comes in direct contact with the ink film. If heat-resistant ink is not used, the heat can soften the ink and cause tracking. This may not occur if just one sheet is laser printed; but if a customer is doing a mail merge or sending a printing of a number of letters or forms at a time, it is very likely to happen.

Inks to be used for pre-printing laser forms must be heat-resistant – that is the key property. To achieve this, certain volatile solvents and low melt point waxes are removed from the formulation. The vehicles selected for these inks must be formulated from the start with heat resistant raw materials. That means a standard ink cannot be converted to a laser-suitable ink. Laser safe inks only should be used for this process. And, you should consult with your ink supplier before adding anything to the ink at press side.

Like most ink, laser inks dry by oxidation, which means they dry in stages. The ink will first penetrate your substrate and on a suitable laser bond sheet the ink will appear “set”. During the first 24-hour period the ink will dry over the top layer of the film and appear totally dry to the touch. The final drying state, where the ink film achieves its hardness through the film, takes a minimum of 72 hours under ideal conditions. This final conversion under some circumstances can take up to 2 weeks. The important point to note is that an ink is not “heat resistant” or laser suitable until this final stage of hardness is achieved.

Some ingredients natural to metallic and fluorescent ink can create build-up on these fuser rollers regardless of how they are formulated. These colors, in many cases, can be simulated to suit the bill, so check with your ink maker before giving up.

Certain other ink applications should be avoided if possible. Any multi-film printing, such as 4-color process, increases the risk of fuser build-up. All ink film should be run as thin as possible. Warn customers not to design jobs with long vertical rules or large solid areas. Also, design with the thought in mind that it is helpful if the fuser roller area comes in contact with plain paper in its rotation *after* touching the ink surface.

Keep in mind that laser inks are designed for UNCOATED papers. Some matte coated sheets are being specified more often today; and you should consult your ink maker for any special recommendations for these papers.

Those using duplicator presses, in particular, should be sure to use metal plates only, and professional type metal plate fountain solutions. Run as dry as possible. If the ink is not running clean on your equipment, consult your ink supplier. Allow the forms to dry as long as possible before boxing for delivery and *never ever* shrink wrap. Remember that an ink film takes at least 72 hours to dry thoroughly. As soon as you block out fresh oxygen from the printed forms, drying slows to nothing and can only be started up again by opening and airing packages.

Sometimes non-laser ink will work without problems on lasers and in forms work. But don't count on it. Observation of the fundamentals as discussed is usually the prudent, as well as, consistently profitable approach to take.