Printing inks for continuous forms

In recent years, the structure of jobs performed in the area of continuous forms industry has changed considerably in terms of requirements for the finished product.

Some of new features include:

- Multicolor printed products.
- Utilization of inline finishing methods.
- Use of special printing stocks.
- Suitability for computerized printing onto forms.

In response to these demands as well as new cost-related circumstances, printers work with the wet-and-dry offset process with and without drying units for the inks.

This wide range of requirements therefore cannot be met with only one type of printing ink.

Conventional inks for continuous forms

These inks can be used in both wet-and-dry offset and letterpress. These inks cannot be used if laser printers, which use heat to fuse the toner, will be used to enter information on these forms.

Inks used to print on carbonless papers must meet the following criteria:

- Quick setting to prevent smearing in roll-to-roll printing.
- No reaction between ink components and microcapsule materials or capsule contents.
- Ink binding media must not have a “neutralizing” effect.
- High color intensity to allow thin ink films.

If large numbers of microcapsules are broken during printing due to incorrect paper handling, ink drying can be greatly delayed by dilution with capsule fluid.

Carbonless papers are not suitable for processing in laser printers. Certain toning agents and pigments must not be present in inks used to print on carbonless papers, since their color can be altered by capsule contents.

As a result, not all the exact colors shown in the Hostmann-Steinberg HKS® E-Guide or the PANTONE® color system are available:

HKS® E-Guide: HKS 27, HKS 33, HKS 43
PANTONE®: Rhodamine Red, Purple, Reflex Blue, Violet, Blue 072.

HBL special inks for laser printer forms

(HBL = Heat resistant for laser printers)

Laser printer manufacturers specify that their machines can only process prints produced with inks which do not soften once dry. Fusing roller temperatures in a laser printer are between 200 and 220 °C.

Ink softening during fusing can cause sticking, buildups on the fusing and pressure rollers, and ultimately severe damage. Large quantities of volatile components, such as mineral oil, can evaporate during fusing and cause smoking and condensate deposits.

HBL inks from Michael Huber München contain only small amounts of volatile components. They dry oxidatively and do not soften. The following problems can occur when HBL inks are used on carbonless papers:

- Contact-yellowing.
- Neutralization effects, although these are not evident since usually nothing is written through in completely printed areas.

Components that tend to increase the surface tension between "melting" toner powder and the ink film must not be used. Adhesion of "fired" toner to printed area is not as good as it is to blank paper, which must be taken into account when forms are designed. If laser printing onto previously printed offset ink is unavoidable, use screens that cover less than 50 % of the surface.

Otherwise toner will adhere to the fusing roller and may cause mechanical damage to it.

Papers available on the market are not identical in quality, and may therefore interact differently with inks.

Preliminary yellowing and neutralization tests should therefore be performed. If these tests indicate problems, special **huber**group inks should be used.

Laser printers can work flawlessly only if all components involved in the process are well in tune with each other. Forms should be so designed that solids will not be superimposed if possible, nor should laser printing take place over printed solids. The inking (ink film thickness) should not exceed about 1.3 g/m^2 which is considered normal for continuous forms printing.

Multi-colour jobs (mailings) are to be printed exclusively with UV-curing or heat-drying inks.

All Hostmann-Steinberg HKS® E-Guide inks are also marketed by Michael Huber München in HBL versions, and can be used just like conventional continuous forms inks.

Continuous forms inks for hot-air dryers

Direct-mail pieces are very often produced on small-format web offset job presses equipped with hot-air dryers. Printing is from roll to roll, always followed by additional printing in laser printers.

Dried inks must meet the requirements imposed on HBL inks. Process inks are used in most cases.

UV-curing inks for continuous forms

The primary target application for these inks is again the production of direct-mail pieces. These inks have very good rub resistance, which makes them particularly suitable for printing on matt-coated papers. Four-colour printing is preferred, using process inks. The inks are smearproof immediately after UV drying, so printers can work from roll to roll. Once dry, the inks meet all requirements for HBL inks.

NOTE

Jobs to be subsequently overprinted by laser should not be printed with any of the follow-ing inks, neither heat-drying nor UV-curing: HKS® 27 E, 33 E, 43 E, and PANTONE® Rhodamine Red, Purple, Reflex Blue, Violet, Blue 072. This will eliminate the risk of pigment sub-limation. Always replace them with their fast counterparts.