

Being Ink Wise on Liner Board

Knowledge about the various types of ink systems available on the market can make the process of ink purchasing easier, and produce a successful press run and end product. This article will review the information you need to provide your ink manufacturer before placing an order. Ink manufacturers need to be aware of the job details, the press being used, and any special properties you want to achieve. Information and planning are keys to successful printing.

Job Application

The type of substrate being run can have a tremendous impact on the ink formulation. There is a wide selection of white-tops, bleached liners, and coated materials. Even though liners may have the same name, they may not run the same or have the same ink laydown characteristics. Samples of all substrates ran should be given to your ink manufacturer so they can match the color to the job. If you're a sheet plant, request that your sheet supplier send samples to you or your ink manufacturer so they can match on the exact product you will be running. Opaque formulations can cover up different characteristics of the liner (mottle, gloss mottle, etc.) while on other substrates, it may be best to formulate using transparent ink formulations.

Sharing artwork with your ink supplier prior to ordering the ink is vital to a successful print job. Your ink manufacturer needs to be aware of the type of printing job you are doing. When a job comes in and is in the design phase, allow them to make suggestions. PDF (artwork) files are easy to e-mail or send by courier.

It is also important to consider the converting process when requesting an ink formulation. If you are planning on die-cutting a full coverage job on lightly coated liner in line on a two-color press without dryers or vacuum transfer, plan ahead. The ink manufacturer can help you by providing faster drying formulations or can help you decide what color sequence to run the job.

Maximizing Use of Your Press

Advance planning before plates are made can reduce passes on the press. You could possibly have a four color

job (one with a red, green, yellow, and blue) and only a three color press. Can the yellow and blue be trapped and eliminate the green to allow the job to be run in one pass? Or if you are running a pastel color and the customer wants an overprint varnish to add gloss, the ink manufacturer can sometimes formulate an overprint tinted with the ink to give you significant gloss levels. Of course, this is all dependent on the job, but it is worth investigating.

Other considerations include the sequence in which you will run the job and the types of traps you will have. Inks can be formulated and delivered to be pH and viscosity ready to allow for a faster set-up time. Some converters not only request that the pH and viscosity required be put on the ink label, but also the press station that it should be run on. The pH and viscosity are determined by the order the inks are trapped, press configuration, and the type of substrate that's run.

Line work and screens may require different resin formulations. Dots dry much faster than line work and need to be printed with more resolvable formulations because less area is printed. This may require different pH and viscosity levels to prevent dot bridging and to provide clean print. Likewise, line work or full coverage may require faster drying formulations or different pH and viscosity levels to run a job more successfully.

Properties

Ink suppliers should also be aware of jobs that may require special rub or moisture resistant characteristics since they require unique formulations. Once an ink is manufactured, it may be difficult to add these properties press-side.

Rub Resistance. As an example, suppose you are printing a display that is a full coverage of dark blue ink on a white-top substrate. When you requested drawdowns or ordered ink, did you inform your ink manufacturer that your customer is planning on placing the product in direct contact with the printed region? End customers can be very particular about the rub-off of the ink onto the product. If your ink manufacturer is aware of this, they can reduce the rub by using special formulations. Different resins, pigments, and additives can be used to improve rub resistance.

Light Fastness. Displays or boxes that will be exposed to direct sunlight also may need special ink formulations.

Certain pigments have high fade characteristics. Rhodamine and methyl violet for instance, fade in a matter of hours in direct sunlight. If a car window shade was printed in process colors, and the magenta contained rhodamine, the job may look excellent off the press, but after a couple of hours in the sun, the magenta will fade dramatically and the once red NASCAR will turn pink. The pigments used in this job could have been substituted with fade-resistant pigments to eliminate this problem.

Moisture/ Humidity Resistance. If the finished product will be in an area where there may be moisture, special formulations or varnishes need to be used for water protection. Boxes used for food and gardening products are typical applications that may be subject to moisture. Inks and varnishes can be formulated to create a moisture barrier for products that maybe stored in refrigerated or outside areas. Some customers request a wax coating or ultra-violet varnish to be applied after printing to help prevent moisture pickup. The ink manufacturer needs to be aware of this since certain pigments can bleed or become resoluble when a wax or varnish is applied. For instance, say you are printing a job that is on a lightly coated liner and has reversed out yellow lettering. If this job has a wax coating and if the yellow was not formulated with the correct pigments, the wax could re-wet the yellow causing the yellow ink to circulate back into the wax bucket. Eventually the white unprinted areas will also turn yellow.

UV or aqueous coatings may change the ink color or hue. Special trap matches (usually called a trap-area-match) should be formulated to achieve the correct color when using a varnish.

Press Characteristics

Is your ink supplier up to date on your present press configuration? Changing anilox rolls or the type of doctor blades can cause a significant change in ink laydown. When a change is made to any station on the press, inform your ink manufacturer. Every station on your press should be matched up to your ink suppliers proofing equipment to allow for consistent and correct ink color matches and density. A 300 lpi 8.0 bcm volume anilox may only release the ink density of a 360 lpi, 6.0 bcm volume if you have worn or clogged cells. Regular cleaning of the cells is important to maintain consistent ink film thickness. Allow your ink manufacturer to perform press audits on a regular basis.

Impact of Press Changes

Changing from a roll-to-roll to a chambered or reverse angle doctor blade system can also impact the amount

of ink lay-down. Inks moved from roll-to-roll to blade systems will have less color strength due to a thinner ink film. Without an ink blending system, you may not be able to regain desired color.

If your press has vacuum transfer or dryers your ink supplier may need to use a different ink system than they would for a press with pull belts without dryers. A more soluble, slower drying resin should be used when using a press with dryers or vacuum transfer. Formulating the inks in advance prevents having to slow down the inks press side by using additives like MEA or glycol that may cause negative reactions in print characteristics. (Be careful when adding any chemicals press-side without the guidance of the ink manufacturer.)

In summary, it is imperative that your ink supplier knows the job application, press configuration, finished properties and of course what liner you are using. Often times even the smallest of details can be of paramount importance in designing the right ink for your customer. By working our way backwards, from the box's end use requirements, we are able to provide the ink supplier with all the necessary details to design a "ink wise" box.

If you would like more information on purchasing ink for your application or other technical topics, contact your Smurfit-Stone Sales Manager or call us toll free at 1-877-785-7835 or by e-mail at paperwise@smurfit.com