Cork Tech TalkNews

Manufacturers of Waterbase, UV+EB Curable Coatings, Varnishes and Adhesives

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DOUBLE BUMPING COATING APPLICATIONS

Why do we attempt to double bump, or apply 2 hits of coatings, one over the other either in-line wet over wet or off-line wet over dry?

IMPROVEMENT, that's it, simply being able to accomplish something that cannot be accomplished in one coating pass.

Why should you be interested in double bump coating benefits? Well read on, and learn about some of the things being done!

In flexo and gravure, double bump coating applications have always been a possibility because of the existence of multiple in-line inking units, any one of which could apply low viscosity varnishes.

In offset, it's been another matter because inkers are limited to applying high viscosity, thin film, paste products. In order to bring the benefits of coatings to litho, dampening units were first converted to allow the application of low viscosity coatings. Once aqueous coating applications over wet conventional litho inks were proven, with resulting great gains in productivity, other better engineered plate, blanket, impression cylinder, and now chambered doctor blade coaters have been and continue to be developed. Over the past 10 years, it's been said that it's a rare 6 color+ litho press that is delivered without provision for a coater. Now, we are seeing installations featuring two in-line coaters being promoted and sold by most sheetfed litho press manufacturers, allowing in-line double bump coating applications to be made. These include the application of acrylic metallic's imitating that which can be accomplished with powder bronzing.

Why two coaters? Well, simply because printers are reaching for another stretch in productivity. First it was the application of aqueous coatings over wet litho inks that allowed productivity gains possible from immediately being able to process sheets that would not setoff still wet inks. Now it is the idea of being able to further finish a job with a final in-line application of a high gloss UV coating, obtain a further improvement in high gloss aqueous coating finish, or create a visual contrast between gloss and matte, etc.

So where is DOUBLE BUMPING today?

Let's start with the new capabilities in sheetfed offset litho presses that are equipped with double coaters, coupled with extended deliveries. Today, some printers are having success with the use of conventional inks, primed in-line with aqueous primer, followed after drying (drying using IR and air knives) with a second bump of in-line applied UV coating (cured using a UV dryer). Problems persist in the amount of dry back or gloss back that occurs over areas of heavy ink coverage. The poorest results have shown loss of gloss in areas of heavy ink coverage as great as 20% within 2 hours, while at best we are looking at gloss back in the area of 3-5%. The very best results, gloss readings approaching 90% reflectivity @ 60 degrees, are being obtained over process colors and forms with lighter coverage's of special conventional inks.

The learning curve has proven to be steep with all elements, inks, fountain solution, blankets, substrates, drying and curing processes, and coatings, subject to a delicate balance.

While we're all looking for answers together , ***LOOK TO CORK!*** .... for both aqueous and UV primers, and UV high gloss, satin, and matte top coats, some of which will accept foil stamping.

IN-LINE, **DOUBLE BUMPING** of aqueous coatings is also done producing somewhat higher gloss results, but newer anilox coaters are seemingly able to produce equal if not higher gloss results in one bump. While higher gloss results in the 80% reflectivity range @ 60 degrees have been achieved, this still falls short of the 90% gloss levels sometimes seen with the second bump of aqueous coating being applied later off-line.

Whatever your interests, ***LOOK TO CORK!*** .... for compatible aqueous primers and top coats.

OFF-LINE coating applications, it may be said, exist because of things that cannot be done in-line. Mainly supporting litho operations, off-line coating equipment has been used to apply high gloss solvent based catalytic coatings, UV coatings, aqueous coatings, blister and skin packaging coatings. Some of these coatings have of necessity been applied off-line. For example, solvent based coatings have not been applied in-line on coater equipped sheetfed offset litho presses due to high temperature bake requirements, and high VOC concerns. On the other hand, glossy catalytic as well as aqueous coatings, are being used in-line on coater equipped web offset heatset presses.

Blister coatings too, have been applied off-line historically because their solvent based chemistry didn't lend itself to use in-line with sheetfed litho printing. Currently however,

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aqueous blister coatings are being applied successfully in-line, in one bump directly over wet conventional litho inks.

LOOK TO CORK! .... for newly available **CK-5790** in-line aqueous polymeric blister coating, formulated for the innovative sheetfed litho printer who is seeking a productivity advantage. Try **CK-5795** or **CK-5796** off-line.

UV coatings are applied off-line with great results on a wide variety of printed material and substrates. While some off-line UV coating is done directly over dry conventional litho inks, in many more cases the UV coating is applied over in-line applied aqueous primer coated litho inks. Additionally, as may be observed on many magazine covers, UV coatings are being used with great success in-line over dry web offset heatset inks.

OFF-LINE, second pass, wet over dry double bumping of coatings is done all the time very successfully. Routinely, sheetfed offset litho printers aqueous prime coat in-line wet over wet conventional litho inks to allow high productivity, followed by immediate further processing without detrimental offsetting. Some printers and trade shops have learned to apply a second bump of high gloss aqueous coating to this work. Some use the same printing press/coater line for the second coating pass. Others use an off-line rollcoater, while still others are using a committed off-line sheetfed press with a coater applying a high gloss aqueous coating. The best of double bump high gloss aqueous coated work being done competes very well with UV coated work as gloss levels as high as 90% reflectivity @ 60 degrees are being produced. The advantage, of using an off-line sheetfed press to apply coating instead of a roll coater, is speed.

Again, ***LOOK TO CORK!*** .... for the highest gloss aqueous top coats, and take advantage of these techniques.

Older one or two color sheetfed presses have also been adapted to allow the off-line application of UV coatings and varnishes to pre-printed material. The off-line press may be equipped with a coater to allow a low viscosity UV coating to be run, or a high viscosity UV varnish may be run through the ink train. Some converters will run directly over pre-dried conventional inks while others will apply the off-line UV coating or varnish as a second bump of coating over in-line, aqueous primed, conventional inks. In either case, very high gloss results are being obtained.

So, once again ***LOOK TO CORK!*** ...., allow a representative to recommend proven coating formulations or let us work with you to evolve successful applications.

LOOK TO CORK! .... for a full line of UV coatings, aqueous primers and top coats tailored to support a variety of flexo, gravure, screen, etc., **IN-LINE** and **OFF-LINE** application techniques.