

### YES, PAPERBOARD IS DIFFERENT!

We were astounded recently when, during a sheetfed litho print/aqueous coating trial run of several varieties of recycled paperboard, inks would simply not set on one particular stock. This occurred after a successful print/aqueous coating run on a high grade C2S SBS when a pallet of 3 varieties of C1S recycled papers, and 3 varieties of C1S recycled paperboards, were fed to the press with all press conditions the same. During this continuous run the 5th recycled stock in order dropped into delivery with a large solid green area completely refusing to set, quite in contrast to what happened on all of the other stocks. This high gloss aqueous coated inked area remained smearable to the lightest finger touch not only immediately on the inspection table but also for more than one half hour in a 95 degree F pile. The aqueous coating in plain uninked board areas was not affected and it dried rapidly to the touch when examined on the inspection table. When the sheets were examined again after 24 hours the overcoated ink area was completely dry under heavy thumb twist pressure.

Now, what happened here? Go from a completely successful print/aqueous coat job then to a variety of recycled stocks and come to one stock where the ink simply seems to refuse to set with all conditions the same. Well, we're not sure that we have the answer and we are still investigating. However, it is clear that something characteristic to this one particular clay coated recycled paperboard did not allow a known excellent performing litho ink to set properly. This problem would make it quite impossible to print and aqueous overcoat any production job successfully.

Enough said about this eye opening experience except to say, be cautious and suspicious, **ALL PAPERBOARD IS NOT THE SAME!**

In recent years a large variety of recycled paper and paperboards have been made available to the printer. As this has occurred, we have been aware that print/aqueous coating performance is not always as good as the experience has been on clay coated SBS. In an effort to understand these field reported and observed differences involving recycled stocks, a laboratory investigative project was initiated.

This project examined the results obtained when 4 different Cork coating types were lab coated both over plain board and over wet litho inked board. Included in the aqueous coatings selected were:

1. *Highest gloss SBS coating.*
2. *Fastest drying high gloss SBS coating*
3. *Medium gloss econo coating*
4. *Highest gloss recycled board coating. A total of 15 different clay coated recycled paperboard stocks were examined.*

Comparing the results it was found that a wide variety of gloss results were obtained that were completely stock dependent. High gloss CK-49MBS produced a gloss as high as 70% reflectivity at a 60 degree angle on one particular wet inked stock and as low as 43% on another. This is in contrast to the 82% average off press achieved on Cork's new brochure/carrier where CK-49MBS was coated on a high grade C2S SBS. A similar range of results but with lower gloss readings was recorded as the other 3 Cork coating types were lab applied and evaluated. Typically, the gloss results obtained over plain board were lower than over inked board.

#### **What did this effort reveal?**

Well it told our chemists a number of things. One, as we were beginning to think, **RECYCLED PAPERBOARD IS NOT ALL THE SAME!** Two, our very high gloss coating Cork-Kote 49MBS developed originally for SBS does not perform equally as well on recycled stocks. Three, another Cork high gloss formula type designed specifically for recycled stocks performed admirably well when compared to the other results.

What to do? Well in some respects back to the drawing board. However, since some benefits were seen in the way that the formulation designed specifically for recycled stocks behaved, it was decided that a further reformulation move seeking additional improvement was sensible.

The results of this reformulation effort are now in. After many development hours and trials CK-4130 and the faster drying CK-4130A are being sold in ever growing quantities.

OVER

**YES, RECYCLED PAPERBOARD IS DIFFERENT!** The differences that exist make it impossible to provide an aqueous high gloss coating that will erase the board differences and produce an equal gloss aqueous coated result. Some of these differences can be found in board surface roughness, holdout, absorptivity, gloss, whiteness, surface energy, pH, and brightness. One or more of these factors may contribute alone or in combination to in-line litho print/coating problems.

**BEWARE** of the recycled board that you use. Appreciate that paper and paperboard is not all the same. When you want consistency from in-line litho printing/-aqueous coating results job by job pick a stock and stick with it. Additionally, look for and be wary of stocks that for some reason retard ink setting. Remember too, a poorly printed job is never improved by the application of an aqueous coating.

When you want the best shot at high gloss aqueous coating results on recycled stocks, take a look at **CORK-KOTE 4130A**.

**LOOK TO CORK!**..... for your coating and varnish needs, for both **aqueous** & **UV/EB** coatings/ and varnishes.