

TECHNICAL BULLETIN

FOUNTAIN SOLUTIONS - ALCOHOL REPLACEMENT TYPE

The push is on to replace alcohol in the pressroom. Pressure from Federal, State, and Local environmental agencies has generated much activity in many pressrooms in the effort to reduce or eliminate isopropyl alcohol from lithographic fountain solutions. This has resulted in the proliferation of fountain solutions and/or additives designed to accomplish that goal.

There are many potential combinations of chemicals which can be formulated into fountain solution concentrates or additives which may impart the desired properties to the solution. However it has been our experience and that of a number of unfortunate printers, that some of the products being marketed can react in much unexpected directions which could result in expensive complications. Some of these can be responded to with reasonable facility; others cannot.

Following are some of the situations which have been encountered:

Ink roller train contamination resulting in stripping, piling, or other related problems. This can usually be eliminated with a more rigorous press maintenance program - most solution manufacturers will recommend this up front.

Ink "break-down". Some of the materials used as surfactants can act as solvents to some ink resin systems and this may result in the ink actually breaking down in the roller train and lead to emulsification, slow drying, and generally poor printing. In this case a change of ink formulation can resolve the problem.

Adhesion problems with subsequent gloss over-coatings such as UV curable and other "Beauty coatings". In some cases the surfactants and wetting agents used in these solutions are of much lower volatility than alcohol, so they remain in and on the ink film for much longer. If a subsequent coating is applied (particularly the UV curable coatings) the remaining surfactant can interfere with the adhesion of the coating to the ink surface. This can result in the coating "flaking" off or generally poor protective properties. One Midwest coating house stipulates this in their guidelines and specifications.

Color "bleed" or shade change after printing. This is a particularly insidious problem since it usually does not show up until after the job is off the press. It is caused by a reaction between materials in the solution and certain common ink pigments. It is a chemical degradation of the pigment resulting in a change of shade. The phenomenon occurs most readily with Reflex Blue and the Rhodamine pigments and is especially noticeable in blends using them. In very light tint colors Warm Reds and Rubines have also been affected.

With the enormous potential for spoilage, particularly in the last two instances, it becomes extremely important to consider the consequences beyond the pressroom when contemplating the change of fountain solutions.

There are so many variations of solutions on the market that testing of the specific product being considered is strongly recommended. Consultation with the suppliers of ink and solution as well as anyone involved in post printing processes such as UV coating or foil stamping can be helpful in spotting potential problem areas and is also highly recommended.