

There are also certain other functions performed by the damping solution on the press which are:

- a) Lubrication of the non-image areas to reduce frictional wear and increase plate life.
- b) Cooling of the ink to prevent drastic viscosity and tack changes which can affect the basic characteristics of the ink during the press run.
- c) The dispersal and removal of lint, paper dust and other debris which might accumulate on the plate or blanket and abrade the plate thereby causing premature breakdown.
- d) The ability to reduce corrosion effects on various press components due to the inclusion of a chemical inhibitor.
- e) Attaining a rapid ink/water balance therefore obtaining fast press starts and also consistent running properties.

Therefore, it can be seen that the damping solution plays a very important part in the delicate physical/chemical principles of lithography.

The formulation of fountain solutions is no longer a matter of chance, each constituent serves a purpose.

Science of Damping Solutions.

One of the damping solutions major tasks is to prevent ink adhering to the non-image areas.

To do this, it must form a barrier which repels ink. The modern presensitised aluminium printing plates are electrochemically grained and anodised. This increases the surface area of the aluminium and gives a porous layer which can hold a thin uniform film of water.

During the printing process, however, the inherent hydrophilic (water attracting) properties of this grained/anodised surface are effected by many factors which can reduce the natural affinity of the plate for water. These factors can include abrasive wear, the effect of incompatible press chemicals, continuous stoppages and drying out of the plate, incorrect roller and damper settings, etc.

The damping solution provides the barrier, but to ensure its presence throughout the run it must contain various components, some of which have an affinity for the surface of the plate and water.

