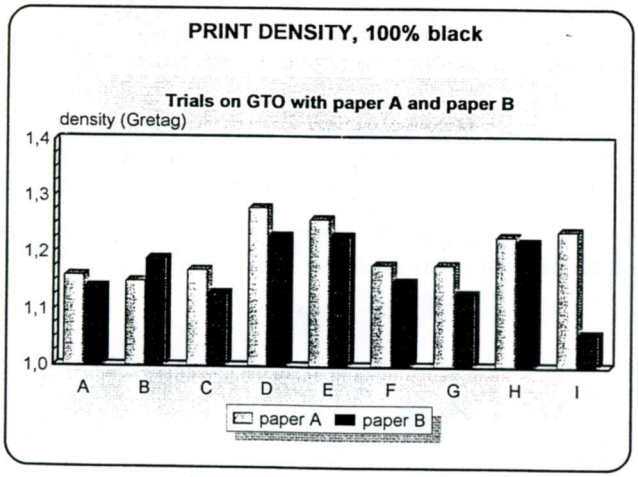
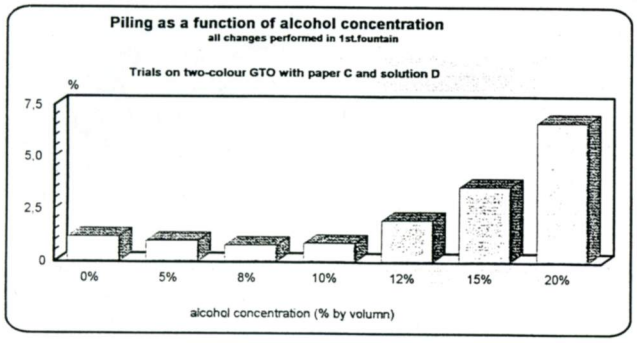


ABOVE: Figure 9

BELOW: Figure 10



paper, the result can be from good to quite unacceptable print-out and stable to totally unacceptable ink/fountain balance.

Influence of alcohol on piling

A print trial was carried out, using solution D and adding varying amounts of alcohol (isopropanol). Piling was measured after 2,000 impressions.

The use of alcohol in the lithographic process is widespread and, indeed, alcohol entails definite advantages for the printer in terms of allowing lower feed of dampener, retaining scum-free plates, attaining ink/fountain balance quicker, *etc*. The excessive use of alcohol, however, can have a detrimental effect on piling, as shown in Figure 10, where excessive concentrations over 10% vol. lead to an increase. Excessive amounts of alcohol act as an aggressive wetting agent, assisting the transport of dampener into the paper and, thereby, effecting the surface strength properties of the paper adversely.

Conclusions

The results shown in this comprehensive study speak for themselves and clearly depict the need for more understanding on the subject of fountain solution suitability for modern fine papers. I am certain that the offset printing industry would wholeheartedly welcome more research to be invested in this subject by graphic institutions, ink and additives manufacturers and the paper industry.

In Sweden, a large-scale research project bearing the name PFT (Paper, Ink, Printing) has been initiated by the combined efforts of STFI (Swedish Forest Research Laboratory), GFL (Graphic Research laboratory) and YKI (Institute of Surface Chemistry). Within this project, it is anticipated that fundamental research will be conducted into fountain solution chemistry and interaction between paper and fountain solution.

Hopefully, this national project, as well as work done elsewhere, will form the basis of better adapted 'modern' fountain solutions, so that we can get on with 'what we are here for', namely printing! My personal wish, until then, is to shed more light onto the matter and to work closer together with the manufacturers of solutions to provide the optimal solution in each and every case.

Kilian Kleinhenz was born in Germany, in 1951, and emigrated to Melbourne, Australia, in 1954. He returned to Germany, in 1970, to take up a papermaking apprenticeship at Zanders, Bergish Gladbach, continuing his studies of paper engineering at Fachhochschule Munich, where he obtained a Master of Science degree in paper technology.

He began is career, as a graduate, with chemical company Schill and Seilacher GmbH, moving to Sweden in 1985 to become production engineer for Klippans Finpapperbruk. In 1994 he joined Stora Papyrus Nymölla, as technical product manager for coated paper and graphic arts within the customer satisfaction department.