CHAPTER 5

CONCLUSIONS

This study investigated the possibility of applying the two-constant Kubelka-Munk theory to the inkjet ink systems. The spreadsheet tool of the K and S determination and the spreadsheet tool of the gamut simulation were developed and found to be simple to use with the selection of inks by dropdown box and command by the button. The two-constant Kubelka-Munk theory can be applied in inkjet ink with a good performance only for coated paper. The nonlinearity of K against concentration was characterised by fitting data to the power series of $K = ac+bc^2+cC^3$. The correction coefficients, r_e of 0.007 for print, r_e of 0.021 for substrate, r_I of 0.600 for print, r_I of 0.600 for substrate, t_e of 0.993 for print, t_e of 0.979 for substrate, t_I of 0.400 for print and t_I of 0.400 for subtrate can minimise the colour difference between the predicted R and the measured R on coated paper to when an integrating sphere instrument was used.

The four colour of inkjet ink set that give the widest colour gamut includes inks contained Direct Blue 199, Acid Magenta 1, Direct Yellow 86 and Black (reddish) ink. Adding of the orange and green ink can extend the gamut in the orange and green region that covered the gamut of Pantone book but not in the violet region. Adding violet ink to colour inks can extend the colour gamut and cover the gamut of Pantone book greatly.