

CHAPTER V

CONCLUSION AND SUGGESTION FOR FURTHER WORK

5.1 Conclusion

The pH of a PVA-green phosphor slurry was adjusted before coating in the pH range of 6.0-8.0 by phosphate and citrate buffers. A phosphate and carboxylate buffers were not compatible with CDT phosphor slurry and caused problem in phosphor film adhesion. Reducing the amount of surfactant, sodium polyacrylate solution (tamol), could slightly reduce pH from 8.2 to 7.8. Dot sizes obtained from slurry containing 90% tamol were in the specification. The reduction of the amount of tamol by 10% resulted in lower photosensitivity of the slurry, it also improved pin hole and sharpness of phosphor dots.

pH slurries could be adjusted by sulfuric acid and by ammonium hydroxide solution. The slurry pH 7.0-8.2 were the optimum pH for current screening process. At pH 7.0, the slurries gave the most satisfactory results as it had an optimum photosensitivity, provided the best overall qualities of the CDT.

The slurry pH 6.0-6.5 and 8.5-9.0 gave undesired dot sizes and generated a problem in phosphor film adherence especially at pH 6.0 which gave poor film adherence to all exposure conditions although, theoretically, it contained the highest HCrO_4^- concentration. The effect on dot sizes due to pH of the slurry could only be seen at high exposure, 115%. The trend was the lower the pH the larger the dot sizes.

5.2 Suggestion for further work

There are many aspects that require further investigation and improvement to get more supporting data in order to control the dot sizes and screen qualities as the following.

- 1) The manual dispensing of green slurry caused poor quality of coating *i.e.* bubbles, dusty, coating thickness, etc.. The experiments proceeded with the routine mass production caused many restrictions such that the slurry with foreign chemicals could not be recycled to the routine slurry tank so it caused a trouble in discontinuing slurry supply to the mass production. The experiments should thus be done on the artificial coating and spin devices designed specifically for research and development.
- 2) Searching for proper surfactants and formulations should also be done to support the phosphor film adhesion for better control of the dot sizes and screen qualities.