

## CHAPTER V

### CONCLUSION AND SUGGESTION

#### 5.1 Conclusion

The development of solder paste flux was carried out using colophony, solvent, activator and thickening agent. The colophony chosen for this study was KE604 because it gave good color and solubility properties. The suitable colophony concentration was 61.8 wt%. If the concentration of colophony was higher than this the solubility and appearance of solder paste flux was unacceptable.

Diethylene glycol diethyl ether was chosen because this solvent had the boiling point lower than the reflow soldering temperature and gave other good characteristics. The suitable concentration of solvent was 28.4 wt % which maintaining acceptable solubility and viscosity of solder paste flux.

The activator was succinic acid because the acid value, melting point and boiling point were matched those of the reflow temperature profile of SMT and no clean halide free solder paste flux was the most preferable one. The suitable concentration of succinic acid was 2.9 wt% because if the concentration of succinic acid was less than 2.9 wt% the trend of electrical insulation resistance was high but the wetting and de-wetting property will be lower. However, if succinic acid was higher than 2.9 wt% the wetting property was better but the electric insulation resistance was deteriorated.

Ozokerite wax was the most preferable thickening agent for the solder paste flux in this work. The ozokerite wax concentration was 6.9 wt % which gave acceptable slump, tackiness and viscosity properties.

This solder paste flux must be stored at 0-10°C in orders to maintain the quality of solder paste flux. The quality of this developed solder paste flux was comparable to those of the commercial available solder paste fluxes.

## 5.2 Suggestion for further work

This study developed the solder paste flux for normal solder (Lead-containing solder). This solder had the melting point between 183-190 °C. In the future, lead will be banned regarding the lead poisoning and the lead solder must be replaced by the lead free solder. However most of lead free solders have the melting point higher than that of the normal solder, therefore, solder paste flux must be developed for lead free solders.



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