

## CHAPTER V

### CONCLUSIONS AND SUGGESTION

#### 5.1 Conclusions

Two types of inkjet inks were prepared from pigments dispersed by surface modification and microencapsulation techniques. Two inks were characterized for viscosity, surface tension, and particle size distribution. The stability of inkjet ink was evaluated for viscosity and particle size for 12 weeks. All the printed fabrics are studied in terms of appearance, color, fiber characteristic, and air permeability.

The inks formulated from the surface modified pigment gave low viscosity and high surface tension than the other set of ink. The ink properties are conformed to inkjet printing requirement, namely, viscosity (3.5-5 mPa s), surface tension (38-45 mN m<sup>-1</sup>), and the pigment particle size (0.22-0.23 μm) to give the good driving pass through the nozzle, which enable the inks with good stability.

The surface modified pigmented ink yield the better printability, higher optical density and tone reproduction, larger color gamut and color gamut volume.

Color fastness to dry/wet crockfastness of both inks was similar but the lightfastness of the printed fabrics depended primarily on their chemical class of pigment. Obviously, the microencapsulated pigmented inkjet ink gave good wash fastness. The wear comfort of printed silk fabric evaluated by the extent of bending

length/stiffness not influenced by printing of neither inkjet inks but to a much greater limit by the fiber itself and fiber direction.

The cationic polymer (acrylic ester or Sanfix 555) flattened the silk fiber and increased the surface area of the substrate. These two pigmented inkjet inks produced high quality prints. The finding indicates a great potential of printing silk fabrics with inkjet inks. To enhance the better printed silk quality, pretreatment of the fabric increases vivid color density, higher printed chroma and durable wash fastness.

## 5.2 Suggestions for Future Work

More characterizations of dispersed pigment quality for textile printing should be investigated such as the degree of pigment dispersion and its size distribution. Interaction parameters on pretreated fabrics to give higher optical density and tone reproduction are worthwhile investigating because it is the major effects to comfort, the print quality, including print resolution.

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