

CHAPTER 5

CONCLUSIONS AND SUGGESTIONS

Conclusions

The UV absorber coating on the inkjet substrate can improve the light fastness of dye-based inkjet ink. The ΔE s of all colors on the non-coated sheet were larger than those on the UV absorber coated sheets. The type of UV absorber does not strongly affect the light fastness of the dye-based inkjet ink, but it affects the background color of inkjet substrate. The hydroxybenzophenone containing UV absorber causes the yellowing of coated sheet while the benzotriazole containing UV absorber does not exhibit this problem. Moreover, the light fastness of dye-based inkjet is a direct proportional to the amount of UV absorber in the coated layer. In case of HALS coated sheets and double-layered coated sheets, these coated sheets show the ineffectiveness in improving the light fastness of dye-based inkjet ink. HALS can increase the light fastness of only blue and black color because of the retardation of catalytic fading. However, these HALS and coated sheets can prevent the ozone induced fading of cyan and its secondary color.

In case of the pigmented inkjet ink, the double-layered coated sheets cannot totally improve the light fastness of this kind of ink. It can be explained that the major part of pigment particles cannot penetrate into the coated layer. Therefore, the coated layer is unable to prevent the photodecomposition of these pigments. However,

there is some effective results to decrease the color change of the low light fastness pigment especially when the UV absorber layer was coated on the pigmented ink.

Suggestion

The coated sheets are not tested under various conditions. There are some important aspects, which relate to the effectiveness of using the coated sheet. For example, the type of water-soluble binder, inks and stabilizer, the effect of humidity, and the real environment exposure have not been studied in more details. The gas induced fading from other oxidative gas such as NO_x , SO_x is also not included. Moreover, preparation the stabilizer-layered coated using a layer transfer technique is an interesting method to control the penetration of stabilizer into the ink-receiving layer. All the aspects mentioned above are recommended for the future work.

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