On the Recording Media with Water-fastness Capability for Inkjet Printing Papers
Pei-Ching Yu*, Chih-I Chen*, Chih-Chen Chen**, Fu-Su Yen*
(*Department of Resources Engineering, Cheng Kung University, Tainan 701)
(**Department of Mechanical Engineering, Far East University, Tainan County 744)

ABSTRACT Flaked porous Al₂O₃ powders which naturally have a cationic surface were applied as one constituent in recording media for inkjet printing papers. The effect of water-fastness capability resulted from adding the Al₂O₃ powders instead of cationic additives for the papers was investigated. Coating slurries fabricated by mixing powders of γ-Al₂O₃, SiO₂ (as the diluter) and PVA (as the binder) were coated on polymeric substrates to form laminated papers. After drying, laminated papers for ink-jet printing purpose were obtained. The paper then was inkjet printed with images thereon and was soaked in water for 30 minutes to examine its water-fastness capability. The results showed that water-fastness capability of the papers increases distinctly with raising the proportion of Al₂O₃ contents in the slurries. TEM micrographs revealed that ink dye particles occupy the crevices and pores that occur between the flaked porous Al₂O₃ crystallites. Therefore the mechanism and the ability of dye-fixing of Al₂O₃ powders can be related to the crevices and pores of Al₂O₃ crystallites, which increasing the water-fastness of the inkjet printing papers.

KEY WORDS alumina, water-fastness, laminated coating paper, ink-jet printing