

### Optimal Enhanced Distillation Process for Waste Photoresist Solvents Recovery

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Thin flat transistor liquid crystal display (TFT-LCD) manufacturing process generates waste solvents that are not treated appropriately, and are incinerated at high temperatures or processed as a high calorie fuels after photoresistor is removed. In this work, alternative treatment process was proposed. Valuable chemical was recovered using sequential distillation system instead of burning them in high temperature incinerator that cause environmental problem. The conventional sequence of distillation columns, which was optimized then thermally coupled distillation and heat pump-assisted distillation sequence was implemented to further improve the distillation performance. Finally, a comparison was made between the conventional and advanced distillation sequences, and the optimal conditions for enhancing recovery were determined. This study was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2015R1D1A3A01015621) and by Priority Research Centers Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2014R1A6A1031189).