

Energy Efficiency Improvement of Diphenyl Carbonate Purification in Polycarbonates Production

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Polycarbonate is one of the most important synthetic polymers because of its wide applications in chemical industries. Polycarbonate is mainly produced by reacting bisphenol A (BPA) and phosgene. This process is hazardous because it uses toxic phosgene compound. To overcome this problem, a phosgene free route for polycarbonates production has been developed. This alternative route use diphenyl carbonate (DPC) as raw material. To obtain good quality of polycarbonates, DPC specifications necessarily satisfy the impurity contents. For fulfilling the DPC specification, distillation is the most suitable process that is used. However, distillation has low thermodynamic and energy intensive. Thus study proposes several advanced distillation schemes to increase the thermodynamic efficiency and reduce the energy requirements in polycarbonate production. As a result, proposed schemes can perform energy savings up to 9145.7 kW or 86.09% in comparison to base case. "This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (2012012532)."