

Application of Thermally Coupled Distillation for DPC Purification Process

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Diphenyl carbonate is an acrylic carbonate ester and an important intermediate product in polycarbonates production. The purity of DPC product determines the quality of polycarbonates. There are two ways to produce DPC, first is by phosgene route and the second is by dimethyl carbonate route. Since phosgene is a toxic compound that makes the process is hazardous and DMC route allows higher productivities hence DMC route is more preferable than phosgene route. DMC route has excellent yields, but the aniline specification has not met the specification needed related to its purity. To increase and obtain aniline purity specification, the additional purification process is required. This 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). "