

Reactive distillator for the production of 4-HBA

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4-Hydroxybutyl acrylate(4-HBA) whose properties were excellent in luster-resistance, thermal-resistance and scratch-resistance was prepared. The 4-HBA preparation is esterification reaction with using a solid acid catalyst. AA and BD were used as reactants and HBA and BDA were products. H₂O was also produced as a byproduct. In esterification reaction if we use a reactive distillator, production yield is enhanced and separation process for taking the product is also simplified with removing the byproduct. Therefore, the reactive distillator was used for 4-HBA preparation to remove the H₂O. The reaction pressures were 400, 500, 600 and 760 torr and the temperature was 100 °C. As a result, the 4-HBA yield was not highly increased but BDA yield was increased. Furthermore, the unreacted BD in the reaction was diminished quickly because $-r_{BD}$ was enhanced by the reactive distillator and that was very desirable for 4-HBA production. Also the H₂O contents after the reaction were 3.90, 2.76, and 2.22 wt% in case of the reactions in 600, 500 and 400 torr, respectively. And the H₂O contents were very small comparing to the contents in 760 torr, viz. 7.76 wt%.