

Production of isobutene from dehydration of bioisobutanol concentrated by distillation

추고연, 박종기[†]
한국에너지기술연구원
(jngkprk@kier.re.kr[†])

Water-based solutions containing bioisobutanol less than 3000 ppm were distilled for obtaining concentrated bioisobutanol which was then dehydrated over an alumina catalyst and converted into isobutene. Dehydration reaction condition was fixed at temperatures of preheater 270°C, line heater 270°C and catalyst bed 450°C. The catalyst bed was packed with acid-treated γ -alumina particles. The concentrated bioisobutanol was supplied to the catalyst bed via preheater and line heater at the feed rate of 15 mL/min. The concentration of bioisobutanol has changed depending on the distillation time and the content of impurities. Bioisobutanol concentrated to more than 75% was converted into isobutene showing the conversion of more than 96% and selectivity of more than 95%.