

### Transmethylation effect in 2-methylnaphthalene methylation by 1,2,4-trimethylbenzene over various zeolite catalysts

박중남, 박용기, 김희영, 이철위\*, 홍석인<sup>1</sup>  
한국화학연구원 화학기술부; <sup>1</sup>고려대학교 화공생명공학과  
(chulwee@kriect.re.kr\*)

The methylation of 2-methylnaphthalene (2-MN) by methanol with 1,2,4-trimethylbenzene (1,2,4-TMB) as the solvent and transmethylating agent was studied over H-Beta, USY, H-mordenite (H-MOR), H-ZSM-12 and H-ZSM-5 zeolite catalysts in a high-pressure fixed-bed flow reactor. For H-Beta catalyst, reaction parameters, such as reaction temperature, pressure, weight hourly space velocity (WHSV), methylation agent and solvent concentration and type, were controlled to investigate the effect of reaction conditions on the catalytic activity. It is also found that as the transmethylation agent, 1,2,4-TMB plays an essential role in maintaining the catalyst at the high catalytic activity and stability, and the high reaction pressure favors to improve the catalyst stability. An attempt is made to explain the catalytic conversion, selectivity and stability in relation to the catalyst acidities, pore structures, reactant and product properties and reaction conditions.