

## Hydroxylation of phenol with $H_2O_2$ over various transition metal ions-exchanged zeolite catalysts: an investigation in the batch and fixed-bed flow reactor

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

The dihydroxybenzenes, such as catechol and hydroquinone, are high value chemicals. They are widely used as photography chemicals, antioxidants and polymerization inhibitors, and also used in pesticides, flavoring agents and medicine. The most desirable method for producing dihydroxybenzenes is the direct hydroxylation of phenol with  $H_2O_2$ , an environmentally-friendly catalytic process. The various transition metal ions-exchanged zeolites were prepared and evaluated in hydroxylation of phenol with  $H_2O_2$  using the atmospheric batch and fixed-bed flow reactor. Both zeolite type and various transition metal ions in zeolite catalyst were revealed to exert critical impact upon the catalytic activity in phenol hydroxylation. It was also found that reaction conditions such as reaction time, reaction temperature and the molar ratio of phenol to  $H_2O_2$  could remarkably influence the reaction results.