

Effects of Monoethanolamine in preparation of  $V_2O_5/MPTiO_2$  catalyst on  $NH_3$  Selective Catalytic Reduction

전세원, 김도희<sup>†</sup>, 송인학, 이황호  
서울대학교  
(dohkim@snu.ac.kr<sup>†</sup>)

$NO_x$  emission regulations have been strengthened and to fulfil demands for efficient  $NO_x$  removal systems, selective catalytic reduction using  $NH_3$  as a reducing agent is considered as an effectual  $NO_x$  removal technique. In order to achieve higher  $NO_x$  conversion at low temperature, monoethanolamine (MEA) was added in preparation of V/MPTiO<sub>2</sub> catalysts. In the present study, different amount of MEA was carefully added in preparation of vanadium precursor solution. The addition of MEA demonstrates a better  $NO_x$  conversion at low temperature and maintains higher  $NH_3$  conversion over the temperature range, which indicates that standard SCR reaction proceeds with less ammonia slip. Furthermore, V/MPTiO<sub>2</sub> with MEA has a larger amount of adsorbed ammonia based on  $NH_3$ -TPD, and more Bronsted acid sites existed compared to the traditional V/MPTiO<sub>2</sub> based on DRIFTS. From the characterizations, our research suggests that vanadium based catalysts could improve catalytic activity with larger extent of adsorbed ammonia and Bronsted acid site when MEA is added in preparation.