DeNOx activity over Mn/TiO_2 catalyst: Effect of preparation method

김영진, 권혁재, 남인식*, 정진우[1], 길정기[1], 차문순[2], 여권구[2]
포항공과대학교 화학공학과;
[1]현대-기아 자동차 Power Train R&D Center;
[2]오덱 기술연구소
(isnam@postech.ac.kr*)

Mn-based catalysts have been commonly regarded as eco-friendly low temperature SCR catalysts. However, a direct comparative study for the Mn-based catalyst with respect to the preparation methods has been rarely reported. In the present study, the catalytic activity and properties of s-Mn/TiO_2 catalyst prepared by sol-gel method have been systematically compared to that of i-Mn/TiO_2 catalyst prepared by impregnation method. The deNOx performance of the s-Mn/TiO_2 catalyst is much superior to that of i-Mn/TiO_2 in the whole reaction temperature region. Based upon the XRD and TEM-EDS study, Mn is basically incorporated into the matrix of Ti over s-Mn/TiO_2 and then makes a solid solution with TiO_2, whereas that simply exists on the surface of TiO_2 over the i-Mn/TiO_2 catalyst. The well dispersed Mn over s-Mn/TiO_2 is the primary cause for the high deNOx performance compared to that over i-Mn/TiO_2 catalyst.