

Effects of loading change and promoters on V/MPTiO₂ for Selective Catalytic Reduction of NO
with NH₃

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NO_x emission regulations have been strengthened and demands for efficient NO_x removal systems have been grown. NH₃-SCR is considered as an effectual NO_x removal technique and in particular, vanadium based catalysts are often used in SCR. Vanadium based catalysts have broad operating temperature range and are strongly resistant to sulfur and its affordable price is also advantageous. Recently, microporous titania has been used as a promising support because of its noticeable benefits over the commercial titania (DT51). It obtains a larger surface area, 158.6 m²/g, than the commercial titania, 82.47 m²/g, restrains undesired product, N₂O and has broad performance temperature range. Due to these advantages, the catalysts supported on MPTiO₂ were expected to have higher NO_x conversion in low temperature than on DT51. In the present study, different amounts of vanadium (3-10 wt%) and various promoters were loaded. Characterizations including NH₃-TPD, H₂-TPR and N₂ adsorption-desorption isotherms were performed to investigate how the catalytic activity was affected by loading change and promoter.