

Effect of transition metal in Mg-Al mixed oxide-supported Pt-BaO Catalysts on NOx storage Process

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NOx storage reduction (NSR) catalyst is considered as the promising method to remove NOx from diesel engines. Pt-BaO/Al<sub>2</sub>O<sub>3</sub> catalyst plays a crucial role in NOx removal. However, due to its deficiency, such as inferior thermal durability leading to sintering of Pt, we found another alternative for the support, Mg-Al mixed oxide support. In previous study, we sought the optimum Mg-Al ratio for the best NOx uptake among various ratios for the support, which is 4:6. For the further research, we added transition metal, such as Ce, Co, Ni on Mg-Al mixed oxide by using co-precipitation method. We denoted the synthesized materials as MMgAl (M=Ce, Co, Ni). Pt(2wt%)-BaO(20wt%)/MgAl and Pt(2wt%)-BaO(20wt%)/MMgAl were prepared by using incipient wetness impregnation method. We investigated the effect of transition metal in Mg-Al mixed oxide-supported catalysts on the physicochemical properties and NOx storage performance of the samples by using several analytical techniques, such as ICP, XRD, H<sub>2</sub>-TPR, BET, chemisorption and NOx uptake measurement.