

NO_x storage process over Pt-BaO/Hydrotalcite(HT)-derived support: Effect of Mg/Al Ratios in HT supports

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The Lean NO_x Trap (LNT) catalyst technology is one of the most effective techniques to remove NO_x from lean-burn engines (e.g. diesel) and has gained considerable attention since the environmental regulations on NO_x emissions from diesel engines have become more stringent. In this study, we used hydrotalcite-derived Mg/Al mixed oxides as support materials for LNT catalysts instead of γ -Al₂O₃ which is commonly used in LNT catalysts. We synthesized hydrotalcite (HT) materials with various Mg/Al molar ratios, followed by calcination. Pt and BaO were loaded by using incipient wetness impregnation method, thus producing Pt(2wt%)-BaO(20wt%)/(Al₂O₃ or HT) catalysts. We investigated the effect of Mg/Al ratios in HT supported Pt-BaO catalysts on the physicochemical properties and NO_x storage performance by using several analytical techniques, such as ICP, XRD, TPD, BET, and NO_x uptake measurement.