

Effect of Soot in Diesel Oxidation Catalyst Supported on Microporous TiO₂ over N₂O formation

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Emission of N₂O from the diesel oxidation catalyst employing microporous TiO₂ has been investigated in the presence of the soot. Here we have demonstrated that location of Pt catalyst supported on zeolitic microporous TiO₂ obtained from hydrothermal reaction of bulk TiO₂ at 430K in the presence of LiOH was found to be resulted in the superior catalytic performance compared to the Pt catalyst supported on alumina. Zeolitic microporous TiO₂ suppresses significantly the N₂O emission, while maintaining the excellent NO_x reduction. The results suggested that the interaction of the soot with the Pt based diesel oxidation catalyst facilitated the N₂O formation, which can be further accelerated when N is present in the soot. The use of zeolitic microporous TiO₂ provides a new way of preparing SCR catalyst with a high thermal stability and superior catalytic performance. It can be also extended further to the other catalytic system employing TiO₂-based substrate.