

MeCl_x-loaded V₂O₅/TiO₂-based catalysts for simultaneous removal of mercury and NO in SCR process

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The MeCl_x-loaded V₂O₅/TiO₂-based SCR catalysts were examined to investigate the role of metal chloride in SCR process for simultaneous removal of NO and mercury. The activity for mercury oxidation significantly increased by loading MeCl_x to V₂O₅/TiO₂-based catalyst, especially under SCR condition. The MeCl_x-loaded TiO₂-based catalysts revealed high activity for mercury oxidation even in the absence of HCl. This may indicate the Cl in MeCl_x act as chlorine source to oxidize elemental mercury to oxidized mercury(HgCl₂). However, The activity of MeCl_x-loaded catalysts for NO removal greatly decreased with the increase of temperature above 300~ 350°C, which may be due to the oxidation ability of MeCl_x for NH₃ oxidation in SCR reaction. The MeCl_x-loaded V₂O₅/TiO₂ catalysts can be promising SCR catalyst for mercury oxidation. However, the effect of MeCl_x on NO removal should be closely examined for simultaneous removal of NO and mercury in SCR process.