

Effects of Ce and W addition to the Pt/TiO₂ and Ru/ZrO₂ catalysts on the hydrodeoxygenation of guaiacol

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The effects of Ce and W addition to the Pt/TiO₂ and Ru/ZrO₂ catalysts for the hydrodeoxygenation of guaiacol have been studied. The catalysts were characterized using XRD, BET, NH₃-TPD, O₂-TPD, H₂-TPR, CO-chemisorption, and TPO. The reaction results exhibited that the Ce addition significantly improved the catalytic activity of the Pt/TiO₂. The conversion of guaiacol was improved by two-fold with the addition of Ce. The presence of Ce in the Pt/TiO₂ catalysts could stabilize the active sites of Pt on the support, and further improved the catalytic activity of Pt/TiO₂. Similarly, the W addition increased the catalytic activity of Ru/ZrO₂ catalysts, which was attributed to the increase of metal dispersion on the supports.