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Effect of $\text{SiO}_2/\text{Al}_2\text{O}_3$ Ratio and Crystalline Structure of Zeolite on Hydrogenation and Hydrodesulfurization over Pt-Pd Catalyst Supported on USY Zeolite

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Effects of the carrier characteristics were studied on the catalytic properties of Pt-Pd-supported USY zeolites in the hydrogenation of tetralin and the hydrodesulfurization of 4,6-dimethyldibenzothiophene. The dispersion of Pt-Pd on USY zeolite increased with the ratio of $\text{SiO}_2/\text{Al}_2\text{O}_3$ in the range of 5 to 150, but was independent on the crystal size of the zeolite. The increment of the Pt-Pd dispersion may affect the enhancement of catalytic hydrogenation and hydrodesulfurization activities. Catalysts on carriers with smaller crystals exhibited higher activities in both catalytic hydrogenation and hydrodesulfurization. Higher catalytic activities of the catalyst prepared from carriers with small zeolite crystals probably resulted from the high external surface area, which contributes to efficient diffusion of the reactant in the liquid phase reaction.

Keywords: [Palladium platinum catalyst](#), [USY zeolite](#), [Desulfurization](#), [Hydrogenation](#)



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