

Highly selective hydrogenation of aromatic ketones to alcohols in water: effect of PdO and ZrO₂

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Streszczenie

Pd/ZrO₂ and PdO/ZrO₂ composites, containing Pd or PdO nanoparticles, were prepared using an original one-step methodology. These nanocomposites catalyze the hydrogenation of acetophenone (AP) at 1 bar and 10 bar of H₂ in an aqueous solution. Compared to unsupported Pd or PdO nanoparticles, a remarkable increase in their activity was achieved as a result of interaction with zirconia. An unsupported PdO hydrogenated AP mainly to ethylbenzene (EB), while excellent regioselectivity towards 1-phenylethanol (PE) was obtained with PdO/ZrO₂ and it was preserved during recycling. Similarly, regioselectivity to PE was higher with Pd/ZrO₂ compared to unsupported Pd NPs. PdO and zirconia resulted in high selectivity to alcohols in the hydrogenation of substituted acetophenones.

Adres publiczny

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