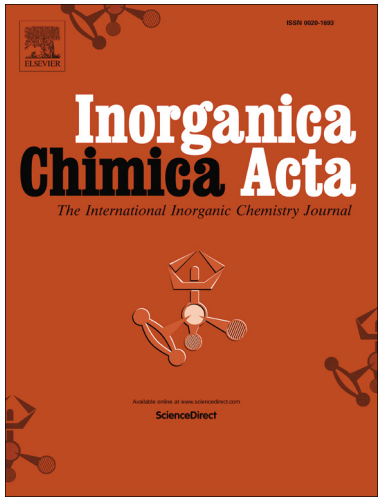


Research paper

# Pd/REOs catalysts applied to the Suzuki-Miyaura coupling. A comparison of their catalytic performance and reusability

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# Pd/REOs catalysts applied to the Suzuki-Miyaura coupling. A comparison of their catalytic performance and reusability

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ABSTRACT

Two new palladium catalysts based on rare earth oxide supports, namely, $Pd/Dy_2O_3$ and $Pd/Yb_2O_3$ were prepared by the incipient wetness impregnation method, followed by calcination at 600 °C. Both compounds, which were fully characterized, were tested as catalysts in the Suzuki-Miyaura reaction and their catalytic activity was compared with that of already known $Pd/La_2O_3$, $Pd/CeO_2$, $Pd/Pr_6O_{11}$, $Pd/Sm_2O_3$, and $Pd/Gd_2O_3$. It has been found that the nature of the support strongly affects the catalytic activity. The scope of the catalytic protocol was investigated and quantitative yields of the coupling products (21 examples are reported) were always observed using a low metal amount (0.05 mol%). A systematic investigation on the reusability of the entire set of catalytic systems has been carried out. All catalysts showed to be successfully recyclable, and also in this case the nature of the rare earth element is crucial. The highest reusability was observed for catalysts $Pd/CeO_2$ and $Pd/Sm_2O_3$.

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