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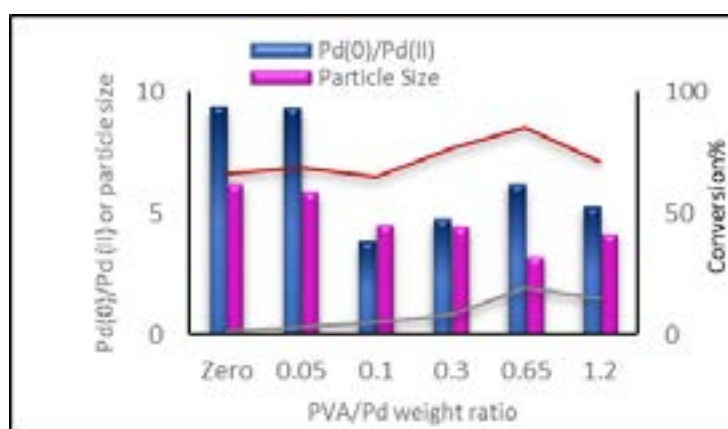
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The influence of tuning the particle size of titania-supported palladium nanoparticles on their catalytic activity for liquid phase transfer dehydrogenation of 1-phenylethanol

Reem AlBilali¹ and Nikolaos Dimitratos²¹Imam Abdulrahman Bin Faisal University, Saudi Arabia²Cardiff University, UK

The influence of varying the stabiliser type (PVA, PVP, and THPC) during the synthesis of palladium nanoparticles *via* sol-immobilisation technique on the resulted particles, and their catalytic activity on the liquid phase transfer dehydrogenation of 1-PhEt has been investigated. The chemical composition and morphology of the fresh and used catalysts were determined using XRD, XPS, BET, SEM-EDX, and TEM. By evaluating the catalytic activity of the series of 1% Pd/TiO₂ catalysts prepared using different PVA/Pd weight ratio, the results illustrate that two main parameters can mainly control the catalytic activity of 1% Pd/TiO₂ in the liquid phase transfer dehydrogenation of 1-PhEt, these are Pd(0)/Pd(II) ratio and the particle size of the catalyst. The results show that two different regimes can be identified during the liquid phase transfer dehydrogenation of 1-PhEt. At the initial time, the particle size parameter appears to control the catalytic performance of 1-PhEt while the effect of Pd oxidation state starts to take place after reaching iso-conversion, where the percentage of Pd(0)/Pd(II) increases while the reaction proceeds.



Biography

Reem Khalid AlBilali is an assistant professor in physical chemistry at the IAU University, Saudi Arabia since 2012. Her research interests are the synthesis and characterization of novel stable monodisperse and bimetallic nanoparticles and their catalytic applications, biomass transformation to fine chemicals and fuels. She worked at Cardiff Catalysis Institute at Cardiff University, UK, as a visiting postdoctoral research fellow during the period of 15/Sep/2015 to 14/Sep/2017. AlBilali has many publications in both Arabic and English language, and she is a (MRSC) member in the Royal Chemical Society (RSC) and a member in the American Chemical Society, Saudi Chemical Society and the National Association of Corrosion Engineers (NACE).

ralbilali@iau.edu.sa