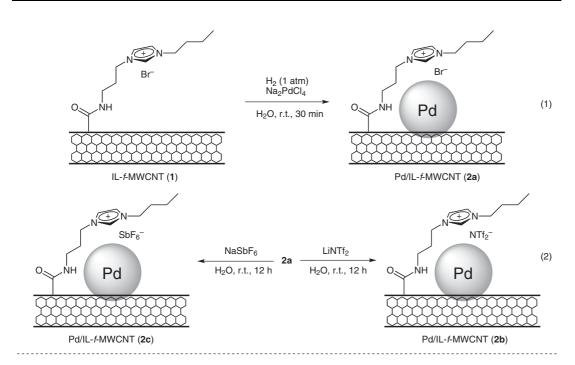
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Palladium Nanoparticles Supported onto Ionic Carbon Nanotubes as Robust Recyclable Catalysts in an Ionic Liquid Chem. Commun. 2008, 942-944.

Palladium Nanoparticles Supported onto Ionic Carbon Nanotubes



2	Conv. (%)	TOF/mol h ⁻¹	
2a	22	660	
2b	9	270	(3)
2c	47	2820	
2c ^a	100	600	

a 1 mol% Pd in i-PrOH-[bmim][SbF₆] bmim = 1-butyl-3-methylimidazolium

Significance: An aqueous solution of IL-f-MWCNTs 1 and Na₂PdCl₄ was hydrogenated under 1 atm of H₂ pressure for 30 min at room temperature to give Pd/IL-f-MWCNTs 2a (eq. 1). Direct anion exchange of the hydrophilic Br anion with NTf₂ and SbF₆ afforded the hydrophobic Pd/ IL-f-MWCNTs 2b and 2c, respectively (eq. 2). The catalytic activities of 2a-c were examined for the hydrogenation of trans-stilbene in MeOH. Pd/IL-f-MWCNT ${f 2c}$ with the ${f SbF}_6$ anion showed superior catalytic activity compared to 2a and 2b (eq. 3).

dazolium-functionalized ionic multi-walled carbon nanotube (IL-f-MWCNT)-supported Pd nanoparticles as a catalyst for the hydrogenation of olefins. Pd/IL-f-MWCNT 2c was effectively immobilized in an ionic liquid, [bmim][SbF₆], with extraordinary stability. Thus, $\mathbf{2c}/[\mathrm{bmim}][\mathrm{SbF}_6]$ was recovered by simple phase separation, and reused ten times without any loss of catalytic activity.

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