

Base-free efficient palladium catalyst of Heck reaction in molten tetrabutylammonium bromide.

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Streszczenie

Phosphine-free palladium precursors (PdCl_2 , $\text{PdCl}_2(\text{PhCN})_2$ and $\text{Pd}(\text{OAc})_2$) in molten $[\text{Bu}_4\text{N}]\text{Br}$ as the reaction medium and without addition of base were used as components for efficient catalytic systems for Heck coupling of bromobenzene with butyl acrylate. In all the systems under studies the yield of product, butyl cinnamate **1**, strongly depends on the concentration of palladium. The maximum yield of **1** was obtained for $\text{PdCl}_2(\text{PhCN})_2$ at 0.09 mol% and for PdCl_2 and $\text{Pd}(\text{OAc})_2$ at ca. 0.4 mol%. Lower yields were obtained below and over that concentration. Addition of bases (NaHCO_3 , NaHCO_2 , Et_3N or Bu_3N) caused an increase of acrylate conversion and formation of butyl β -phenyl cinnamate **2**. During recycling experiments the change of selectivity was observed with increase of **1/2** products ratio.

Słowa kluczowe

Heck coupling, Phosphorus-free palladium catalyst, Molten tetrabutylammonium salt, palladium nanoparticles, Base-free Heck reaction

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