CAS SciFinder^{n}

Task History

Initiating Search

July 19, 2023, 5:07PM

References:

Advanced Search:

Author Name: **Siamaki, Ali R.**

Search Tasks

Task	Search Type	View
Returned Reference Results (28)	References	View Results
Exported: Viewed Reference Detail	References	View Detail

CAS SciFinder^{n}

Reference Detail

View in SciFinder^{n}

Highly efficient and recyclable nickel-palladium bimetallic nanoparticles supported on multi-walled carbon nanotubes for copper-free Sonogashira cross-coupling reactions

By: Siamaki, Ali R.; Coker, Katherine A.; Picinich, Lacey A.

Nickel-palladium bimetallic nanoparticles supported on multi-walled carbon nanotubes (Ni-Pd/MWCNTs) were prepared by dry mixing of the nickel and palladium salts using the mech. energy of a ball-mill. These nanoparticles demonstrated remarkable catalytic activity in Sonogashira cross-coupling reactions with a wide range of functio nalized aryl halides and terminal alkynes under ligand and copper free conditions using Monowave 50 heating reactor. The catalyst is air-stable and can be easily removed from the reaction mixture by centrifugation and reused several times with minimal loss of catalytic activity. Furthe rmore, the concentration of catalyst in Sonoga shira reactions can be lowered to a min. amount of 0.01 mol% while still providing a high conversion of the Sonoga shira product with an excellent turnover number (TON) of 7200 and turnover frequency (T OF) of 21600 h^{-1}. The Ni-Pd/MWCNTs nanoparticles were fully characterized by a variety of spectro scopic techniques including X-ray diffraction (XRD), transmission electron microscopy (TEM) and XP S. The remarkable reactivity of the Ni-Pd/MWCNTs catalyst toward Sonogashira cross-coupling reactions is attributed to the high degree of the dispersion of Ni-Pd nanoparticles with small particle size of 5- 10 nm due to an efficient grinding method. This work provides a facile, solventless and inexpensive method for large-scale preparation of Ni-Pd/MWCNTs to accomplish often-challenging Sonogashira cross coupling reactions.

Conference

Source
Abstracts of Papers, ACS Spring Meeting 2023, Indianapolis, IN, United States, March 26-30, 2023
Pages: No pp. given
Conference; Article
2023
CODEN: 70AQZQ
View all Sources in Scifinder^{n}

Database Information
AN: 2023:1393359
CAplus

Company/Organization
Chemistry, Physics and Materials Science
Fayetteville State University
Fayetteville
United States

Publisher
American Chemical Society

Language
English