Accepted Manuscript

Title: Electrostatic adsorption-microwave synthesis of palladium nanoparticles on graphene for improved cross-coupling activity

Authors: S.E. Gilliland III, J. Meynard M. Tengco, Y. Yang, J.R. Regalbuto, C.E. Castano, B.F. Gupton



PII:	S0926-860X(17)30529-X
DOI:	https://doi.org/10.1016/j.apcata.2017.11.007
Reference:	APCATA 16461
To appear in:	Applied Catalysis A: General
Received date:	8-8-2017
Revised date:	13-10-2017
Accepted date:	7-11-2017

Please cite this article as: S.E.Gilliland, J.Meynard M.Tengco, Y.Yang, J.R.Regalbuto, C.E.Castano, B.F.Gupton, Electrostatic adsorption-microwave synthesis of palladium nanoparticles on graphene for improved cross-coupling activity, Applied Catalysis A, General https://doi.org/10.1016/j.apcata.2017.11.007

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Electrostatic adsorption-microwave synthesis of palladium nanoparticles on

graphene for improved cross-coupling activity

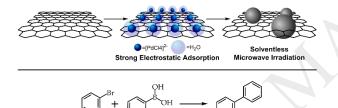
S. E. Gilliland III,^a J. Meynard M. Tengco,^b Y. Yang,^a J. R. Regalbuto,^b C. E. Castano,^{a,c*} B. F. Gupton,^{a*}

^a Department of Chemical and Life Science and Engineering, Virginia Commonwealth University, Richmond, VA 23284, USA

^b Department of Chemical Engineering, Swearingen Engineering Center, University of South Carolina, Columbia, SC 29208, USA

^c Department of Mechanical and Nuclear and Engineering, Virginia Commonwealth University, Richmond, VA 23284, USA

* Corresponding author(s): cecastanolond@vcu.edu; bfgupton@vcu.edu;



Highlights

- New method based on SEA and MW for Pd-G catalysts for Suzuki reactions is presented
- Improved activity of SEA-MW Pd-G catalysts vs. commercial Pd-C catalysts is achieved
- High catalytic activity of Pd-G by SEA-MW method is alluded to the G vacancy defects
- Three routes of microwave induced Pd-graphene defect formation are proposed
- Oxygen content of graphene is linked to Pd-defect formation and catalytic activity

Graphene materials as catalyst supports have shown tremendous promise for improving catalytic activity. Pd nanoparticles supported by graphene defects have been shown to improve catalytic activity in Suzuki reactions, but

Download English Version:

https://daneshyari.com/en/article/6497129

Download Persian Version:

https://daneshyari.com/article/6497129

Daneshyari.com