SW-P006

High Catalytic Activity and Recyclability of Graphene Oxide Based Palladium Nanocomposites in Sonogashira Reaction

Bo Hyun Kim, Joon B. Park*

Department of Chemistry Education, Chonbuk National University

Graphene and graphene oxide (GO) have been modified with palladium nanoparticles (Pd NPs) to develop high performance catalysts for the Sonogashira cross coupling reaction. To understand catalytic performance of Pd NPs on graphene (Pd/G) and Pd NPs on GO (Pd/GO), we monitored their morphological and electronic structural changes before/after Sonogashira reaction using FT-IR, XRD, XPS, and XAFS. Here, we demonstrate that both Pd/G and Pd/GO show high catalytic efficiency toward the Sonogashira reaction, but only Pd/GO revealed excellent recyclability. The remarkable catalytic efficiency of both catalysts is attributed to the high degree of the Pd NP dispersions on supports and thus smaller Pd NPs can provide highly reactive low coordinated Pd atoms. However, we attributed the excellent recyclability of Pd/GO to the presence of oxygen functionalities on GO, which can provide nucleation sites for the detached Pd atoms during the Sonogashira reaction and prevent agglomeration of the Pd NPs since the oxygen functional groups are very reactive to mobile Pd adatoms.

Keywords: Palladium, graphene

SW-P007

High Speed Etching for Saw Damage Removal Using by RF DBD

고민국, 양종근, 이현주

제주대학교 에너지공학과

6" Multi-crystal Silicon wafer has etched suing a remote - type RF Dielectric barrier discharge (RF DBD) at atmospheric pressure. DBD source is composed of Al electrode and coated Al2O3 dielectric as function of Ar/NF3 gas combination and input power used 13.56 MHz power supply. Ar gas flow rate is changed from 2 to 10 Slm, and NF3 flow rate is changed from 0.2～1 slm. At the result, NF3 flow rate Si etching rate also increase whit the increasing of NF3 flow rate But at 2 slm etching rate was decrease. In this experience, Max etching rate is 2.3 μm/min when the scan time is 45 sec.

Keywords: DBD, etching