Suzuki–Miyaura Coupling with Main-Chain Organometallic Polymer

Scheme 1: Preparation of triptycene-based MOMP-1:

Scheme 2: Suzuki–Miyaura coupling catalyzed by MOMP-1:

Significance: A triptycene-based NHC-Pd main-chain organometallic microporous polymer (MOMP-1) was prepared from 2,6,14-triiodotriptycene according to Scheme 1. MOMP-1 catalyzed the Suzuki–Miyaura coupling of aryl halides with phenylboronic acid in water to give the corresponding biaryls in 88–97% yield (Scheme 2, 9 examples).

Comment: The characterization of MOMP-1 was performed by NMR, SEM, TEM, EDS, XRPD, TGA, nitrogen sorption, and elemental analyses. In the coupling of bromobenzene with phenylboronic acid, the catalyst was recovered by filtration and reused twice without loss of its catalytic activity (2nd run: 96% yield, 3rd run: 96% yield).