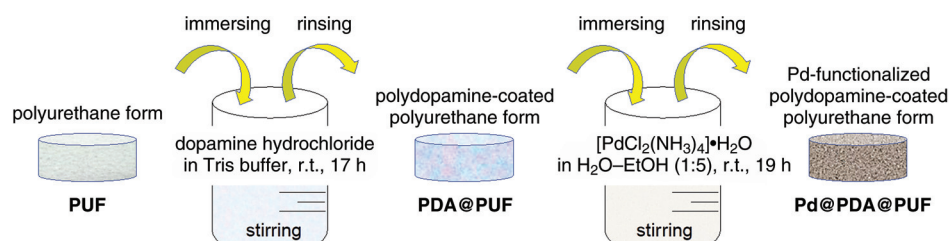


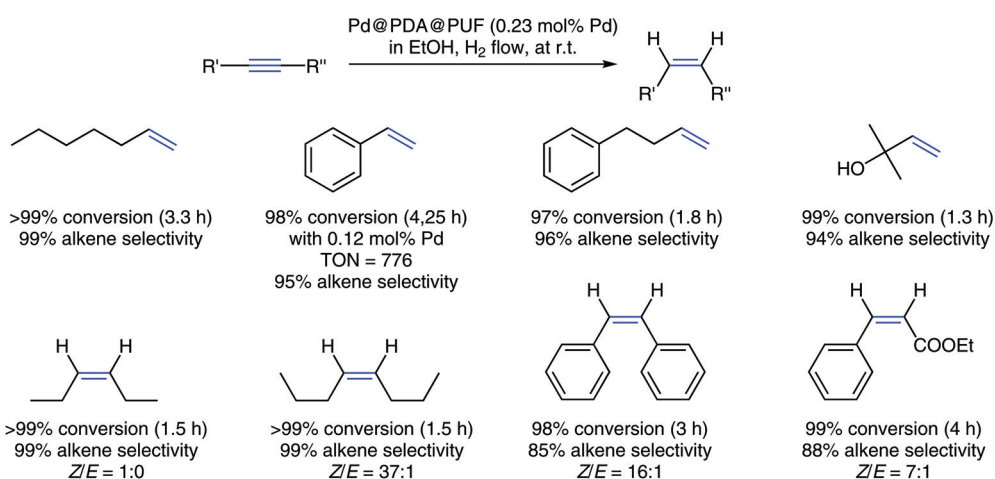
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Pd-Functionalized Polydopamine-Coated Polyurethane Foam: A Readily Prepared and Highly Reusable Structured Catalyst for Selective Alkyne Semi-Hydrogenation and Suzuki Coupling under Air
Green Chem. **2023**, *25*, 264–279, DOI: 10.1039/d2gc03283j.

Semi-Hydrogenation of Alkynes and Suzuki Coupling with a Polyurethane Foam-Supported Pd Catalyst



Preparation of Pd-functionalized polydopamine-coated polyurethane foam (Pd@PDA@PUF); schematic image



Significance: A novel polymeric Pd catalyst, Pd-functionalized polydopamine-coated polyurethane foam (Pd@PDA@PUF), was readily prepared from polyurethane (PUF) through immersing-rinsing processes with dopamine and $\text{PdCl}_2(\text{NH}_3)_4$. Pd@PDA@PUF catalyzed the semi-hydrogenation of terminal as well as internal alkynes with excellent alkene selectivity. Pd@PDA@PUF also promoted the Suzuki–Miyaura bialyl coupling efficiently under air.

Comment: Pd@PDA@PUF was readily recovered and reused without significant loss of its catalytic performance. A single cubic sample of Pd@PDA@PUF (8 cm^3 ; Pd loading $7 \mu\text{mol}$) catalyzed 15 consecutive catalytic reactions consisting five runs of semi-hydrogenation of phenylacetylene, five runs of Suzuki coupling of PhBr and PhB(OH)₂, and again five runs of semi-hydrogenation of phenylacetylene; 0.23 mol% Pd for all reactions with 3 mmol of substrate in each run.

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Synfacts 2023, 19(04), 0383 Published online: 17.03.2023
DOI: 10.1055/s-0042-1752629; Reg-No.: Y03523SF

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Category

Polymer-Supported Synthesis

Key words

polyurethane

polydopamine

palladium catalysis

semi-hydrogenation

Suzuki coupling

Synfact
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Month

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