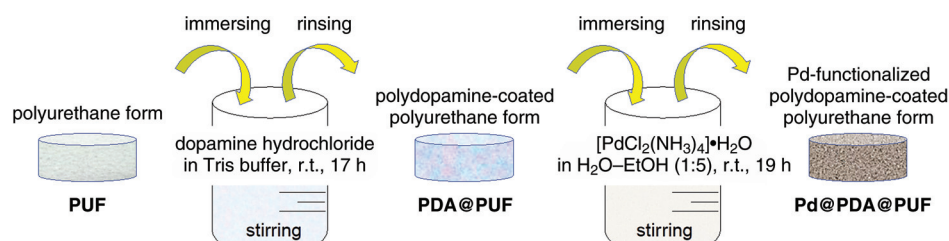


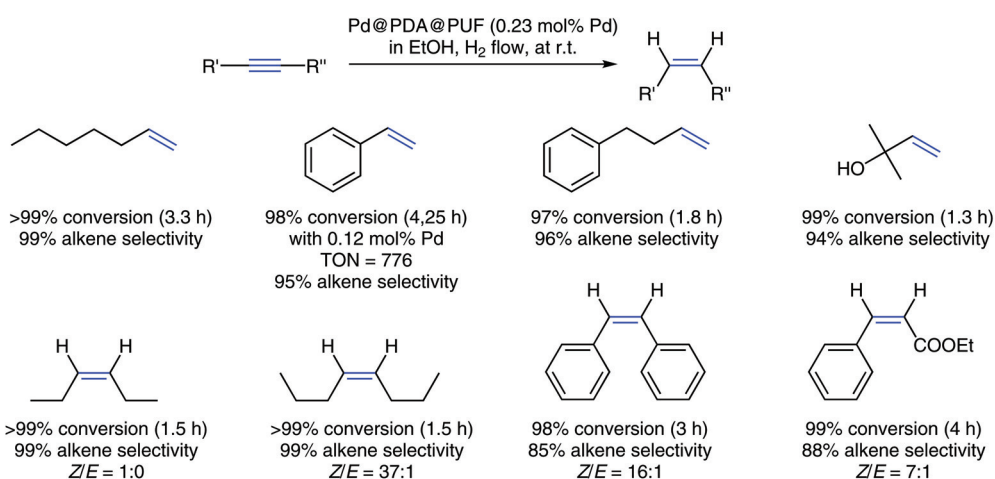
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Pd-Functionalized Polydopamine-Coated Polyurethane Foam: A Readily Prepared and Highly Reusable Structured Catalyst for Selective Alkyne Semi-Hydrogenation and Suzuki Coupling under Air  
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## Semi-Hydrogenation 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 ( $8 \text{ cm}^3$ ; 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  $\text{PhB}(\text{OH})_2$ , 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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