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Heteropoly Acids: A Green and Efficient Heterogeneous Brønsted Acidic Catalyst for the Intermolecular Hydroamination of Olefins

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Heteropoly Acid Catalyzed Hydroamination of Alkenes

Significance: Heteropoly acids (HPAs) catalyzed hydroamination of alkenes was described. Thus, the intermolecular hydroamination of alkenes (2 mol equiv) with amides or carbamates was performed in the presence of $\text{H}_4\text{SiW}_{12}\text{O}_{40}\cdot\text{nH}_2\text{O}$ (3 mol%) in dichloroethane (DCE) at r.t. to 85 °C to afford the corresponding products **1–14** in 48–91% isolated yield. The catalyst was reused twice with slight loss of catalytic activity (1st use = 78%, 2nd use = 74%, 3rd use = 62%).

Comment: $\text{H}_4\text{SiW}_{12}\text{O}_{40}\cdot\text{nH}_2\text{O}$ was the most efficient HPAs catalyst (**2**: 95%) compared with $\text{H}_3\text{PW}_{12}\text{O}_{40}\cdot\text{nH}_2\text{O}$ (**2**: 63%), $\text{H}_3\text{PMo}_{12}\text{O}_{40}\cdot\text{nH}_2\text{O}$ (**2**: 82%), $\text{Na}_3\text{PMo}_{12}\text{O}_{40}$ (no reaction), $(\text{NH}_4)_3\text{PW}_{12}\text{O}_{40}$ (**2**: trace) and $\text{Ag}_3\text{PW}_{12}\text{O}_{40}$ (**2**: trace). The catalyst was recycled via simple filtration and washing with DCE.

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