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Catalytic Epoxidation Activity of Keplerate Polyoxomolybdate Nanoball toward Aqueous Suspension of Olefins under Mild Aerobic Conditions

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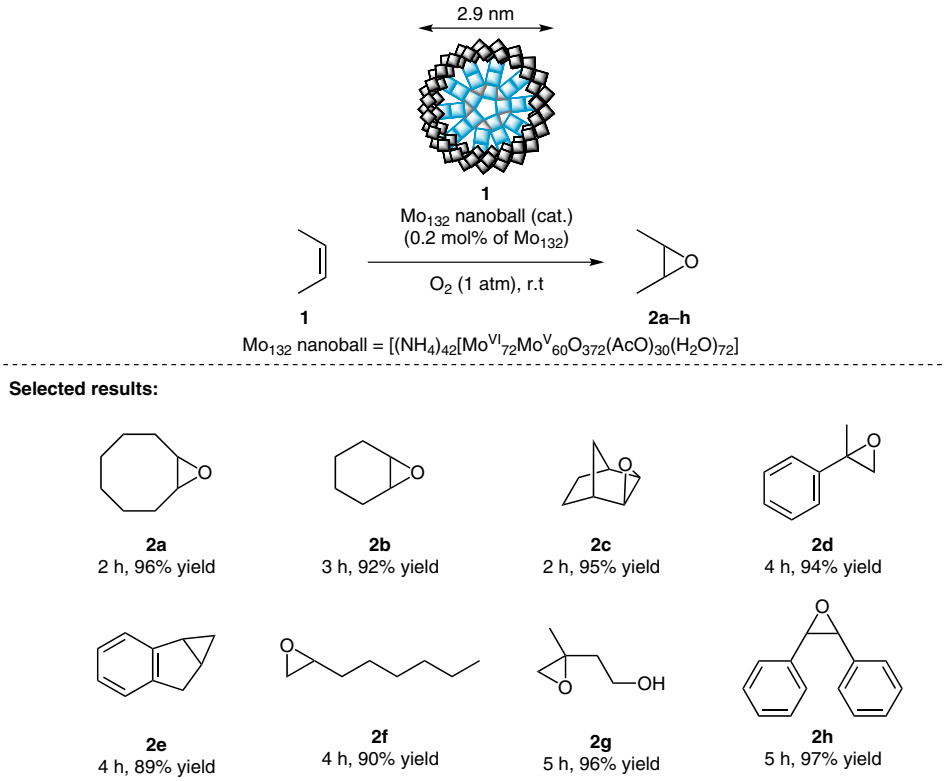
Aerobic Epoxidation with a Polyoxomolybdate Nanoball



Significance: The aerobic epoxidation of olefins in aqueous solution takes place with the Keplerate-type polyoxomolybdate Mo_{132} catalyst **1** under oxygen to give the corresponding products **2a**–**h** in up to 97% yield. In contrast, MoO_3, $(NH_4)_6Mo_7O_{24}$, and Na_2MoO_4 showed no catalytic activity under similar conditions.

Comment: The Mo_{132} nanoball decomposed at pH >8. The decomposed material had no catalytic activity for the epoxidation. The Mo_{132} nanoball catalyst **1** was readily recovered as an aqueous solution and reused nine times without significant loss of its catalytic activity. The solid Mo_{132} catalyst was also readily recovered by removal of water.

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Category

Polymer-Supported Synthesis

Key words

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