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Silica-Supported Organolanthanum Catalysts for C–O Bond Cleavage in Epoxides
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Ring-Opening Hydroboration of Epoxides Catalyzed by a Silica-Supported Organolanthanum Complex

Category

Polymer-Supported Synthesis

Key words

lanthanum catalysis

mesoporous silica

hydroboration

epoxides

Synfact
of the
Month

Results:

Significance: An organolanthanum complex immobilized on mesoporous silica nanoparticles ([La]@MSN₇₀₀), prepared as shown in equation 1, catalyzed the ring-opening hydroboration of epoxides with pinacolborane to give the corresponding boryl ethers in 87–100% NMR yield (eq. 2).

Comment: [La]@MSN₇₀₀ was characterized by means of mass balance of grafting, surface alcoholysis reactions, elemental analysis, and DRIFTS, STEM, EDX, and SSNMR spectroscopies. In the reaction of styrene oxide with pinacolborane, the catalyst was reused five times with a gradual loss of its catalytic activity.

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