

Metal-doped Zeolites as Green Catalysts for Organic Synthesis

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Dedicated to Professor Willi Kantlehner for his achievements

Metal-doped zeolites prepared by vapor diffusion are excellent heterogeneous catalysts. Copper(I)-exchanged zeolites catalyze for example 1,3-dipolar reactions or Mannich condensation, whereas scandium(III)-exchanged zeolites catalyze the Mukaiyama-type aldolization. These catalysts are easily prepared, stable for months, conveniently recovered by filtration and recyclable. They can be used in safe solvents and even without solvent, and thus fully comply with the Green Chemistry principles. Their ease of handling and their large scope of applications enabled us to introduce the “zeo-click” concept for organic synthesis catalyzed by such green heterogeneous catalysts.

Key words: Heterogeneous Catalysis, Zeolite, Copper, Scandium, Click Chemistry