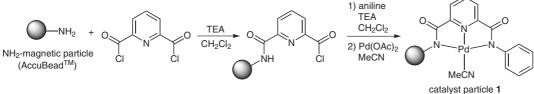
C. P. PARK, D.-P. KIM* (CHUNGNAM NATIONAL UNIVERSITY, DAEJEON, SOUTH KOREA) A Microchemical System with Continuous Recovery and Recirculation of Catalyst-Immobilized Magnetic Particles *Angew. Chem. Int. Ed.* **2010**, *49*, 6825-6829.

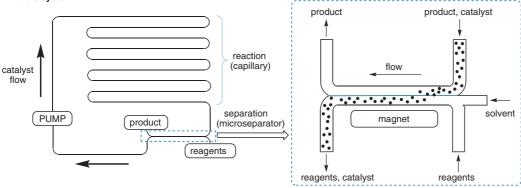
A Flow Reaction System Using Catalytic Magnetic Particles

Immobilization of catalyst on magnetic particles:

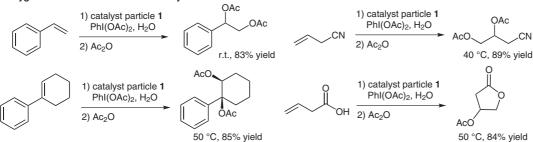


Microseparator

A fluidic system:



Dioxygenation of alkenes in the fluidic system:



Significance: A novel fluidic system using catalytic magnetic particles was developed. In the separator part (microseparator), the product stream with the catalytic magnetic particles merged with the solvent stream, and the particles in the product stream moved into the solvent stream with the aid of the external magnetic field. Almost no mixing and thus, almost complete separation occurred as a result of laminar flow. The dioxygenation of alkenes was carried out in the fluidic system using catalyst particle **1** (4 examples, 83–89% yield).

Comment: The flow system consists of a microfluidic chip type of a microseparator [poly(dimethylsiloxane): width: $300~\mu m$, depth: $50~\mu m$, length: 20~mm] and a capillary microtube reactor [poly-(tetrafluoroethylene): diameter: $500~\mu m$, length: 260~cm]. In the preparation of magnetic catalyst **1**, commercially available magnetic particles having silica surface functionalized with primary amine groups were used (average size: 1.99~mm, Accu-Bead, bioneer, Korea).

•: catalyst particle 1

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Category

Polymer-Supported Synthesis

Key words

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microseparator chip
capillary

microtubes
flow chemistry



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