

Copper-functionalized magnetic mesocellular foams: as a magnetically recoverable nanocatalyst for carbon-selenium bonds formation

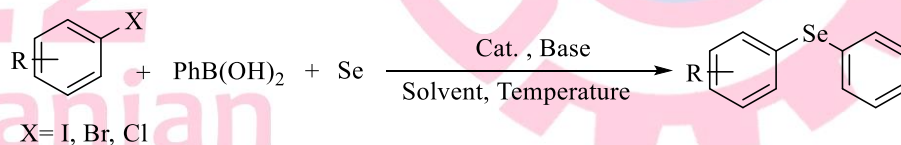
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With the development of nanoscience and nanotechnology, chemists achieved the various catalytic reactions due to a wide variety of nanostructured catalysts or immobilization of homogeneous catalysts on nanostructured supports [1]. Among the various nanoparticles, mesoporous silica compounds especially siliceous mesocellular foams (MCFs) due to a three-dimensional mesoporous structure with internal connectivity, large pore size (diameter 20–50 nm), uniform pore size ranges, large pore volumes, high surface areas ($>1000 \text{ m}^2 \text{ g}^{-1}$), a large number of silanol groups that contribute to high catalyst loading and high thermal and chemical stability are good candidates for catalyst supports [2, 3]. The formation of C–Se bonds using catalytic methods is very popular in diverse fields including organic synthesis, the pharmaceutical industry, and materials science [4].

In this work, we report a new system for the synthesis of phenyl aryl selenides in the presence of copper-modified-MCF as a novel magnetically reusable nanocatalyst (Scheme 1).



Scheme 1. Copper complex supported on magnetic MCF nanoparticles for carbon-selenium bonds formation

The significant advantages of the designed system include simple separation, reusable for several times, eco-friendly, high stability and good to excellent yields of products in relatively mild conditions.

Keywords: Nanostructure, Mesoporous silicas, C–Se bond formation

References

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