

Mesoporous Polymer as Effective Polyoxotungstate Support for Liquid-Phase Olefin Epoxidation Using H_2O_2

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Polyoxotungstate catalysts have attracted much attention in liquid-phase olefin epoxidation using H_2O_2 as an oxidant. These catalysts are often immobilized on ion-exchange resin and mesoporous silica by ion exchange method for easy separation and recyclability. However, a significant decrease in activity remains after immobilization remains a serious problem.

In this work, we showed that polyoxotungstate supported on mesoporous polymer exhibited high catalytic activity with high epoxide selectivity as compared to other supported catalyst (*i.e.*, mesoporous polymer, amberlite). This high catalytic performance was attributed to facile diffusion of the reactants and products in the mesopore. Moreover, the catalysts showed maximum activity at optimized ammonium content. This result indicated that right balance between hydrophobicity and hydrophilicity is required to achieve a good immobilized catalyst. This information would be useful for designing support for immobilization of homogeneous catalyst.