

## Chemical Immobilization of Heteropolyacid (HPA) Catalyst on Mesoporous Material and Its Application to the Oxidation Reactions

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Heteropolyacids (HPAs) are early transition metal–oxygen anion clusters that have found successful applications in homogeneous and heterogeneous catalysis for acid–base and oxidation reactions. Mesoporous materials were modified to have a positive charge, and thus, to provide sites for the immobilization of HPA catalyst. By taking advantage of the overall negative charge of heteropolyanion, the HPA catalyst was chemically immobilized on the surface–modified mesoporous materials as a charge–compensating component. In this work, HPAs were chemically immobilized on the surface–functionalized mesoporous materials such as mesoporous silica and mesoporous carbon. The supported catalysts were applied to the model vapor–phase alcohol conversion and methacrolein oxidation reactions. The authors acknowledge support from the Korea Science and Engineering Foundation (KOSEF R01–2004–000–10502–0).