

A new heterogeneous catalyst including Heteropolyacid and heterocycle composite for m-xylene ammoxidation

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Heteropoly acids are widely used materials as a heterogeneous catalyst for an oxidation catalyzed reactions. A new composite of heteropoly acid and heterocycle has a good thermal stability and high activity for a heterogeneous catalyst in the ammoxidation of xylene. PMoV1 and imidazole composite catalyst exhibits high activities with over 75 percent of the selectivity to the ammoxidation product, even though there is a problem on the thermal stability for the heteropoly acid. Use of the in situ IR spectroscopy has shown that no change in the Keggin structure is occurred at high temperature(over 380) during the ammoxidation. Characterization of the catalyst, using XRD, SEM, TGA and EDX, has provided evidence for the formation of PMoV1 and imidazole composite catalyst and its thermal stability for the application to industrial ammoxidation process.