Rh(I) or Rh(III) supported on MCM-41-catalyzed selective hydroformylation-acetalization of aryl alkenes: Effect of the additives.

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Abstract

Rh(I) and Rh(III) impregnated on mesoporous supports such as MCM-41 have demonstrated a very high catalytic activity in the prodn. of acetals under the hydroformylation conditions of alkenes. The one pot process that combines hydroformylation and acetalization processes leading to acetals as major products was carefully studied. R(I) supported catalysts combined with the heteropoly acid H3PW12O40 showed high catalytic activity towards the formation of acetals. However, Rh(III) supported catalysts were much more active in the absence of any additive. The addn. of P(OPh)3 increased significantly the selectivity of the reaction towards the branched acetals. The effects of the addn. of different types of phosphine and phosphite ligands were studied.