

Development of Catalyst, Incorporating Phosphinite Ligands, for Transfer Hydrogenation

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Abstract : Transfer hydrogenation (TH) is a key process in organic chemistry, particularly in pharmaceutical and agrochemical synthesis, offering a safer and more sustainable approach compared to traditional methods. This work focuses on the synthesis and utilization of ruthenium catalysts containing phosphinite ligands in TH reactions. The aim is to develop an efficient catalyst that can selectively reduce various substrates to yield important alcohols for pharmaceutical and agrochemical applications. The work addresses key challenges in sustainable chemistry, reducing environmental impact, enhancing access to pharmaceutical intermediates, improving chemical manufacturing, and advancing catalysis science. The methodology involves the synthesis of a phosphinite ligand and a ruthenium complex, followed by TH reactions of acetophenone and its derivatives using the resulting catalyst. This research contributes to the development of greener and more efficient synthetic routes, with potential implications for diverse industries reliant on chemical synthesis.

Keywords : transfer hydrogenation, ruthenium, catalysts, phosphinite ligands

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