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A Solid Supported Palladium Catalyzed Aza-Wacker Enamine Synthesis

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A SOLID SUPPORTED PALLADIUM
CATALYZED AZA-WACKER ENAMINE SYNTHESIS

A Thesis

Submitted to the School of Graduate Studies and Research
in Partial Fulfillment of the
Requirements for the Degree
Master of Science

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Indiana University of Pennsylvania
School of Graduate Studies and Research
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Title: A Solid Supported Palladium Catalyzed Aza-Wacker Enamine Synthesis

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The Wacker process was a one of the biggest discoveries of the late 1950's and was later adopted for the large scale production of acetaldehyde from ethylene. One problem with metal (Palladium) catalyzed reaction is that it's difficult to eliminate the Palladium from the reaction mixture upon completion of the reaction. Initially, standard synthetic Wacker conditions used catalytic Palladium(II) Chloride with stoichiometric CuCl_2 in a solvent system of N,N-dimethylformamide (DMF) and water. Following its initial development, the Wacker process was modified to be used in synthesis of many different important commodity chemicals and pharmaceuticals. Here, is reported the efforts to develop a reaction conditions for the production enamines by using Aza-Wacker oxidation with heterogeneous catalyst 5% Palladium on carbon rather than homogeneous catalyst.