

## Synthesis of Vic-Dioxime Palladium (II) Complex: Precursor for Deposition on SBA-15 in ScCO<sub>2</sub>

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**Abstract :** Synthesizing supercritical carbon dioxide (scCO<sub>2</sub>) soluble precursors would be helpful for many processes of material syntheses based on scCO<sub>2</sub>. Ligand (a $\phi$ -(1Z, 2Z)-N-(2-fluoro-3-(trifluoromethyl) phenyl)-N'-hydroxy-2-(hydroxyimino) were synthesized from chloro glyoxime and flourus aniline and Pd(II) complex (precursor) prepared. For scCO<sub>2</sub> deposition method, organometallic precursor was dissolved in scCO<sub>2</sub> and impregnated onto the SBA-15 at 90 °C and 3000 psi. Then the organometallic precursor was reduced with H<sub>2</sub> in the CO<sub>2</sub> mixture (150 psi H<sub>2</sub> + 2850 psi CO<sub>2</sub>). Pd deposited support material was characterized by ICP-OES, XRD, FE-SEM, TEM and EDX analyses. The Pd loading of the prepared catalyst, measured by ICP-OES showed a value of about 1.64% mol/g Pd of catalyst. Average particle size was found 5.3 nm. The catalytic activity of prepared catalyst was investigated over Suzuki-Miyaura C-C coupling reaction in different solvent with K<sub>2</sub>CO<sub>3</sub> at 50 °C. The conversion ratio was determined by gas chromatography.

**Keywords :** nanoparticle, nanotube, oximes, precursor, supercritical CO<sub>2</sub>

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