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Deposition of Palladium(II) Schiff Base Complexes on Mesoporous Silica in $scCO_2$ and Their Catalytic Activities C-C Coupling Reactions

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The efficient separation and subsequent recycling of homogeneous transition-metal catalysts remains a topic that not only constitutes scientific challenges, but also is of commercial relevance. It is known various metal complexes have been used widely in C-C coupling reactions. Also this type of catalytic particules showed high yield and selectivity with schiff base with metal complexes.

This study has been included, Schiff base ligands were synthesized by condensation of 2-fluoromethyl aniline with 2-hydroxy-4-methyl benzaldehyde and their characterization. This palladium complex was synthesized and characterized by elemental analysis, FT-IR, ^{1}H NMR ^{13}C NMR. Elemental analysis data is matched with theoretical data. In FT-IR(KBr, pellet, cm^{-1}) spectra of ligand specific peaks observed at disappearances of O-H peak at FT-IR spectrum of Schiff Base of Pd complex indicated that the formation of metal complexes and azomethine group shifted. In the ^{1}H NMR (300MHz, DMSO/ppm) spectrum of ligand: δ= 2.29 (*s,* 3H,C**H**$_3$), 6.88-7.59 (*m,* 7H, Ar-**H**), 8.98 (s,1H,**H**C=N), (s, 1H, O**H**) 12.71 ppm.^{13}CNMR (400 MHz, DMSO-d_6) : δ= 19.88 (CH_3), 116.18-136 (Ar-H), 154.6 (OH), 158.25 (HC=N), 164.5 (C-F) ppm. In the ^{1}H NMR spectra of palladium complex, O-H peak disappeared due to complexation and δ 1.037 (*s*, C**H**$_3$) ppm,δ 6.39-7.62 (*m*, C=C-**H**), δ 8.207ppm (*s*,**H**-C=N). The synthesized Palladium complex used as precursor for $scCO_2$ deposition method and characterized by TEM.

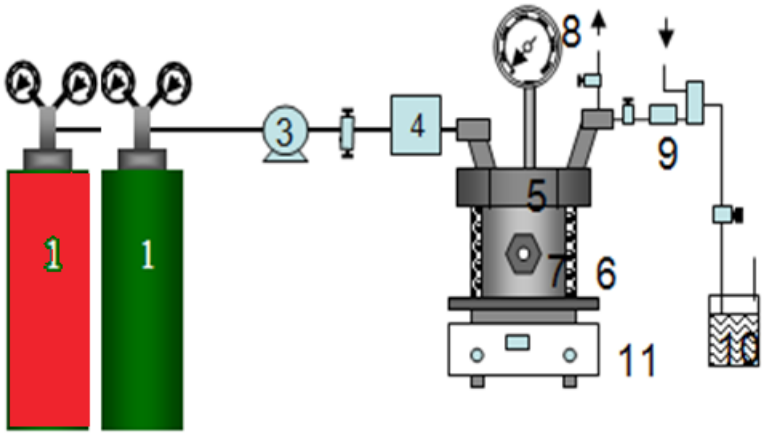

Figure 1. *Deposition mechanism*

References:

Cabanas, A., **2012**. "Adsorption Of Pd(Hfac)$_2$ On Mesoporous Silica SBA-15 Using Supercritical CO_2 And Its Role In The Performance Of Pd–Sio$_2$ Catalyst", J. of Supercritical Fluids, 69, 21– 28.

Knozinger. H. , **2003**. "Heterogeneous Catalysis and Solid Catalysts" Ulmann's Encyclopedia Of Industrial Chemistry, Wiley-VCH Verlag GmbH & Co. KGaA.