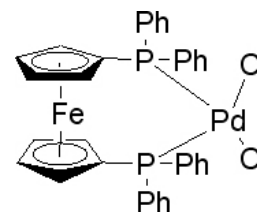


# Application Note M9.0

## Scavenging Pd(dppf)<sub>2</sub>Cl<sub>2</sub> Catalyst

Pd(dppf)<sub>2</sub>Cl<sub>2</sub>: [1,1'-Bis(diphenylphosphino)ferrocene]dichloropalladium(II)

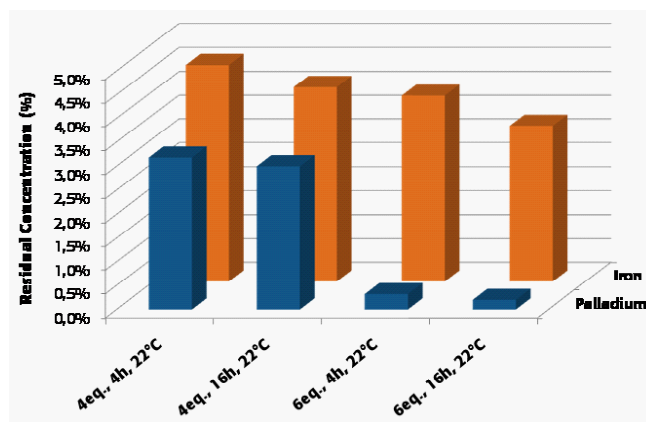
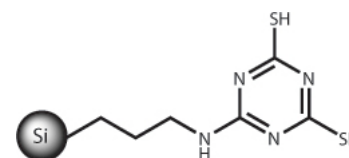
Pd(dppf)<sub>2</sub>Cl<sub>2</sub> is a new catalyst becoming more and more popular in palladium-catalyzed cross-coupling reaction like Suzuki coupling. This catalyst offers non-negligible advantages compared to tetrakis(triphenylphosphine)-palladium(0) [Pd(PPh<sub>3</sub>)<sub>4</sub>]: more stable, less air-sensitive, and longer shelf-life.



A metal scavenging study using SiliaBond Metal Scavengers products was conducted on Pd(dppf)<sub>2</sub>Cl<sub>2</sub> catalyst. Various parameters were studied for their influence on the scavengers' robustness as well as to establish the best conditions to bring the level of metal down to an acceptable level for the pharmaceutical industry (i.e.: solvent, number of equivalents, temperature, and reaction time).

### SCAVENGING Pd(DPPF)<sub>2</sub>Cl<sub>2</sub> CATALYST RESULTS

SiliaBond DMT (structure at right) was significantly the most efficient scavenger for the removal of Pd(dppf)<sub>2</sub>Cl<sub>2</sub>. Only results using this scavenger are presented.



Pd(dppf)<sub>2</sub>Cl<sub>2</sub>: Residual Palladium & Iron Concentration (ppm) and Palladium & Iron Removal (%) using SiliaBond DMT

Conditions	Pd		Fe	
	ppm	%	ppm	%
4eq., 4h, 22 °C	15.9	96.8	22.7	95.5
4eq., 16h, 22 °C	15.0	97.0	20.4	95.9
6eq., 4h, 22 °C	1.6	99.7	19.5	96.1
6eq., 16h, 22 °C	< 1.0	99.8	16.3	96.7

Initial concentration: 1 000 ppm in DCM