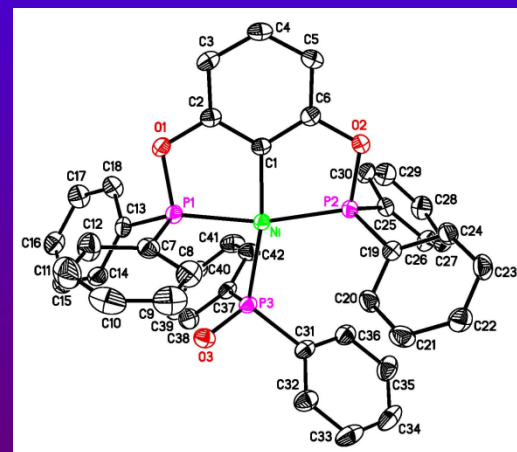
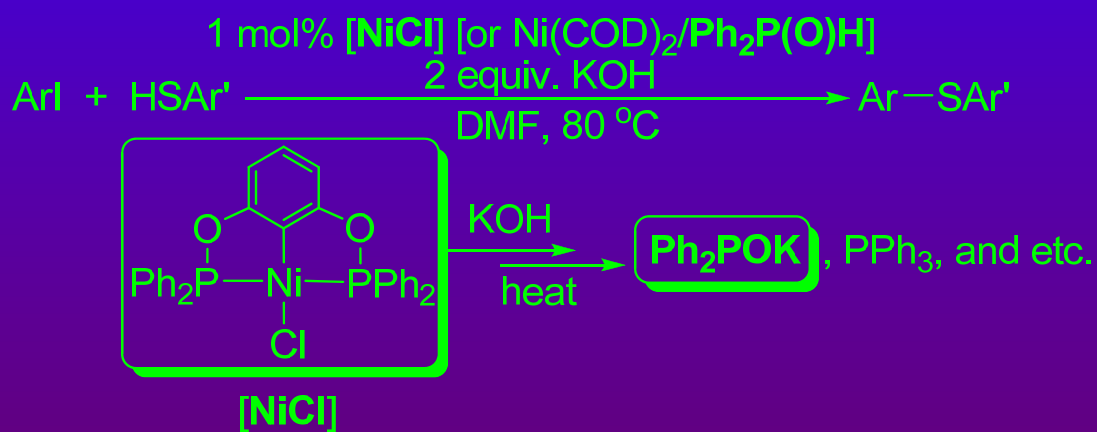


New Catalysis with Nickel Pincer Complexes

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Catalytic cross-coupling of aryl halides and aryl thiols provides a simple and efficient route for the synthesis of diaryl sulfides, which are of significant importance to the pharmaceutical industry. Palladium complexes have been reported to catalyze rapid C–S coupling reactions that are compatible with a wide variety of substrates. One of the new challenges in the field is to replace palladium with inexpensive metals, but still preserving high levels of efficiency and functional group tolerance.

We have shown that a nickel bis(phosphinite) pincer complex catalyzes C–S cross-coupling of various aryl iodides and aryl thiols under mild conditions.



Mechanistic studies have suggested that the pincer ligand framework in the nickel complex is destroyed by KOH via the cleavage of P–O bonds to release Ph₂POK, and further decomposition leads to Ph₃P and other phosphorus-containing products. The cross-coupling reactions are more effectively catalyzed by Ni(COD)₂/Ph₂P(O)H.