

Accepted Manuscript

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Linked by Pyridine

Matthew S. Winston, John E. Bercaw

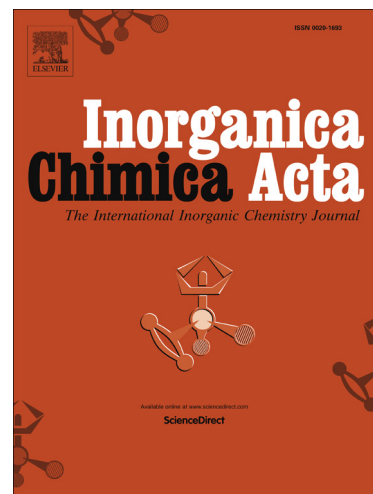
PII: S0020-1693(14)00474-5
DOI: <http://dx.doi.org/10.1016/j.ica.2014.08.002>
Reference: ICA 16136

To appear in: *Inorganica Chimica Acta*

Received Date: 6 May 2014
Revised Date: 30 July 2014
Accepted Date: 1 August 2014

Please cite this article as: M.S. Winston, J.E. Bercaw, Palladium(II) Complexes Supported by a Bidentate *Bis*(secondary)phosphine Linked by Pyridine, *Inorganica Chimica Acta* (2014), doi: <http://dx.doi.org/10.1016/j.ica.2014.08.002>

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Palladium(II) Complexes Supported by a Bidentate *Bis*(secondary)phosphine Linked by Pyridine

Matthew S. Winston and John E. Bercaw*

Department of Chemistry, California Institute of Technology, Pasadena, CA 91125,
United States

Abstract

A series of complexes of the type (PNP-H₂)PdX₂ (X = Cl, Br, I) have been synthesized, where PNP-H₂ is a bis(secondary)phosphine ligand linked by a pyridine, 2,6-(Ph(H)P)₂(C₅H₃N). Due to chirality at phosphorus, the parent ligand exists as a mixture of nearly equivalent *rac* and *meso* diastereomers non-interconverting at room temperature. When ligated to Pd(II) halides, however, the diastereomeric ratio is dependent upon the halide. The chloro, bromo, and iodo complexes have been characterized crystallographically. Conformationally similar *meso* diastereomers of each dihalide are roughly C_s symmetric in the solid state, while the *rac* diastereomers (identified only for X = Br, I) show substantially different solid-state conformations.

1. Introduction

Transition metal complexes having tertiary phosphine ligands (PR¹R²R³), including those with chirality at one or more phosphorus atoms, have been extensively investigated.¹ By contrast, secondary phosphines (PHR¹R²) and their coordination preferences to transition metals are far less explored,² likely due to their toxicity, volatility and pyrophoric nature. Moreover, their syntheses often require the intermediacy of compounds bearing phosphorus protecting groups (boranes, oxides, sulfides, and selenides) for purification that may only be removed under reducing conditions.³

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