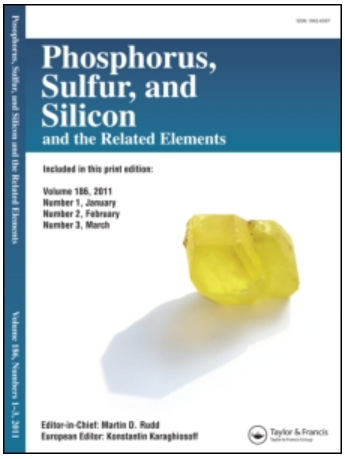

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Diphosphirenium Salt: A New Versatile Ligand

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DIPHOSPHIRENIUM SALT: A NEW VERSATILE LIGAND

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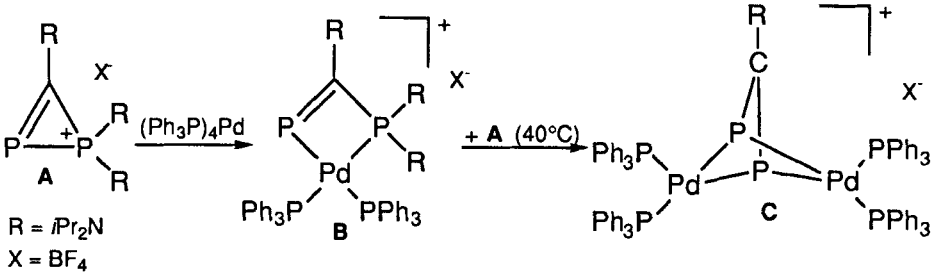
Strained aromatic cyclopropenylium cations are versatile ligands for transition metal complexes: η^1-, η^2- and η^3-coordination modes have been observed. Here we report on the ligand properties of the related diphosphirenium salt A[1]. Treatment of a dichloromethane solution of diphosphirenium salt **A** with an equimolar amount of palladium tetrakis(triphenylphosphine) afforded 1,3-diphospha-2-bis(triphenylphosphine)pallada(II)cyclobutene **B** in 70% yield. Exchange of the triphenylphosphine ligands occurs with various phosphines, and the structures of these new diphosphametallacyclobutenes have been elucidated by NMR and in one case by a single X-ray diffraction study[2].



Surprisingly, when a dichloromethane solution of complex **B** was refluxed overnight in the presence of diphosphirenium salt **A** a new complex **C** was formed. This cationic 1,3-diphospha-2,4-dipallada(II)tricyclo[1.1.1]pentane is the first compound featuring pyramidal μ^2-phosphinidene units.

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