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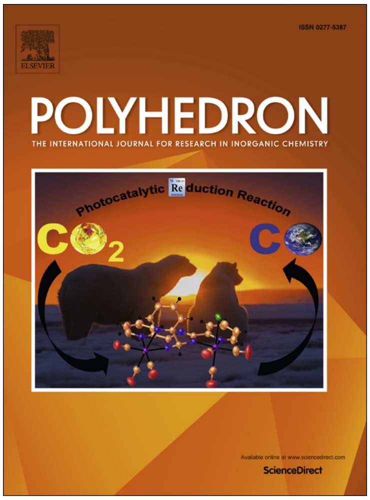

Triazenide complexes of iridium. Evidence for [Ir(η^1-N_3Ph_2)(HN_3Ph_2)(1,5-cod)], structures of [Ir_2(μ–OMe)$_2$(1,5-cod)$_2$], [Ir_2(μ-N_3Ph_2)$_2$(1,5-cod)$_2$], [Ir(η^2-N_3Ph_2)(H)($SiPh_3$)(1,5-cod)], [Ir(η^2–N_3Ph_2)(H)($SnPh_3$)(1,5-cod)] and [Ir(η^2-N_3Ph_2)(SC_6F_5)$_2$(1,5-cod)]

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ABSTRACT

The reaction of [Ir_2(μ-OMe)$_2$(1,5-cod)$_2$] with diphenyltriazene gives a product, formulated as [Ir(η^1-N_3Ph_2)(HN_3Ph_2)(1,5-cod)] on the basis of NMR data, which dimerises slowly in solution forming [Ir_2(μ-N_3Ph_2)$_2$(1,5-cod)$_2$] and which reacts with SiHPh3, SnHPh3 and C_6F_5SH to give [Ir(η^2-N_3Ph_2)(H)($SiPh_3$)(1,5-cod)], [Ir(η^2-N_3Ph_2)(H)($SnPh_3$)(1,5-cod)] and [Ir(η^2-N_3Ph_2)(SC_6F_5)$_2$(1,5-cod)] respectively.

1. Introduction

The triazenide ion, most notably in the diaryl form, has recently attracted attention as a ligand of potential interest in homogenous catalysis because of its versatility in modes of binding to a metal and the relative ease with which the steric and electronic properties can be adjusted by choice of appropriate substituents for the aryl groups. Diphenyltriazenide and derivatives in which the phenyl groups carry substituents have been used in studies of the chemistry of d block [1-73], main group [54, 74-81] and f block [57, 78, 82, 83] metals where the triazenide ligand exhibits the bonding modes η^1 [1-8, 57], η^2 (nonbridging) [1, 6, 9-33, 54-58, 73-83] and bridging [21, 28, 34-54, 60-72]. Other, less common, bonding modes include chelation of one metal atom while bridging to a second metal atom *via* one of the nitrogens (which binds to both metal atoms) [43] and the use of two adjacent nitrogens to bind to a metal atom while the third nitrogen binds to a second metal atom [66, 67, 76]. Many triazenide complexes are now being prepared in which substituents on the N_3Ph_2 phenyl groups are also involved in bonding to a metal atom [55-73] leading, in some cases, to