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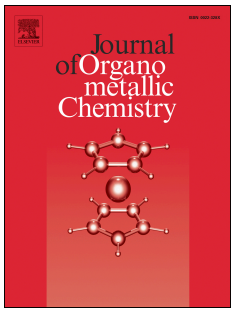

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Teruo Beppu, Kei Sakamoto, Yumiko Nakajima, Kazuhiro Matsumoto, Kazuhiko Sato, Shigeru Shimada

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Hydrosilane Synthesis via Catalytic Hydrogenolysis of Halosilanes Using a Metal-Ligand Bifunctional Iridium Catalyst

Teruo Beppu, Kei Sakamoto, Yumiko Nakajima,* Kazuhiro Matsumoto, Kazuhiko Sato, and Shigeru Shimada*

Interdisciplinary Research Center for Catalytic Chemistry (IRC3), National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba Central 5, 1-1-1 Higashi, Tsukuba, Ibaraki 305-8565, Japan

e-mail: yumiko-nakajima@aist.go.jp (Y. Nakajima) s-shimada@aist.go.jp (S. Shimada)

Abstract Hydrogenolysis of various halosilanes was catalysed by iridium amido complexes to produce hydrosilanes. Selective *mono*hydrogenolysis of di- and trichlorosilanes similarly proceeded, resulting in the formation of chlorohydrosilanes (R_2SiHCl or $RSiHCl_2$) as synthetically important building blocks for various organosilicon compounds. A mechanistic study supported the *in-situ* formation of an iridium hydride species as a key intermediate, which could transfer the hydride to the silicon atom through a metal–ligand bifunctional mechanism. One-pot hydrotrimethylsilylation of olefins was achieved *via* successive hydrogenolysis and hydrosilylation reactions starting from Me_3SiCl.

Keywords: Hydrogenolysis, Halosilane, Hydrosilane, Iridium amido complex