

# GERMYLENE CATALYSIS UNDER AMBIENT CONDITIONS

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Significant growth has occurred in using low-valent main-group compounds as catalysts for organic transformations. The catalytic reactions of these catalysts are conducted in an inert atmosphere due to their instability in air and moisture. Germylenes, a class of low-valent main-group compounds, have primarily been studied as catalysts for the hydroboration and cyanosilylation of carbonyl compounds.<sup>[1]</sup> Hydrosilylation of CO<sub>2</sub> utilizing a germylene→borane adduct and germylene cation has also been reported recently.<sup>[2-3]</sup> However, the use of germylene catalyst to hydrosilylate carbonyl compounds is hardly known. Considering these aspects, we report the dipyrinate ligand stabilized air and water stable germylene cation [DPMGe][[(HO)B(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub>]] (**2**) as a valuable catalyst for aldehyde and ketone hydrosilylation under ambient conditions (Figure 1). Using 1 mol% of compound **2**, various aldehydes and ketones were hydrosilylated with >99% conversion (Scheme 1). Further details of this work will be shown during the presentation.

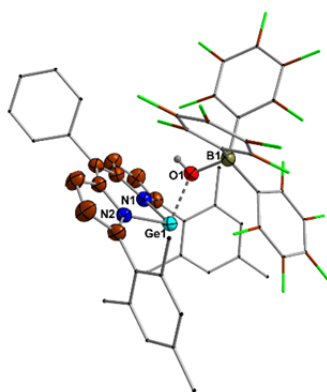
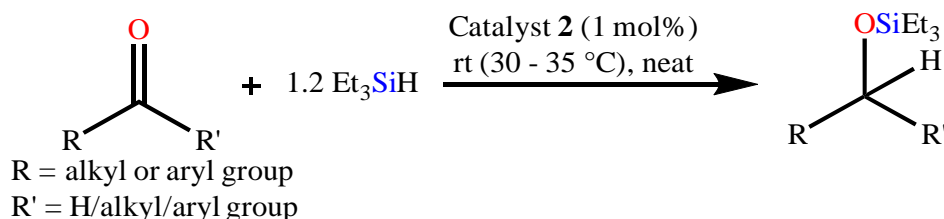


Figure 1: Molecular structure of catalyst **2**.



Scheme 1: Hydrosilylation of aldehydes and ketones catalyzed by germylene cation **2**.

[1] S. Nagendran, J. Shukla, P. Shukla, P. Mahawar, *Comprehensive Organometallic Chemistry IV, Organometallic Compounds of Germanium*, G. Parkin, K. Meyer and D. O'Hare, Elsevier, Kidlington, UK, 2022, 10, 92–421.

[2] N. Del Rio, M. Lopez-Reyes, A. Baceiredo, N. Saffon-Merceron, D. Lutters, T. Müller, T. Kato, *Angew. Chem., Int. Ed.*, 2017, **56**, 1365–1370.

[3] D. Sarkar, S. Dutta, C. Weetman, E. Schubert, D. Koley, S. Inoue, *Chem.- A Eur. J.*, 2021, **27**, 13072–13078.