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3-Silylated Cyclohexa-1,4-dienes as Precursors for Gaseous Hydrosilanes: The B(C₆F₅)₃-Catalyzed Transfer Hydrosilylation of Alkenes

**B(C₆F₅)₃-Catalyzed Transfer Hydrosilylation of Alkenes**

![Chemical Reaction Diagram]

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\begin{align*}
R^1 & = \text{H, Hex, Ph, Hept} \\
R^2 & = \text{H, Me, Ph} \\
R^3 & = \text{H, Me} \\
R^1,R^2 & = \text{Cy} \\
R^1,R^3 & = \text{indenyl derivatives, dihydronaphthalenyl, cyclohexenyl, cycloheptenyl, norbonenyl} \\
R^4 & = \text{Me, Et} \\
X & = \text{H, Me, Ph (if } R^4 = \text{Me)}
\end{align*}
\]

**Selected examples:**

- **[Ph]SiMe₃**
  - 85% yield

- **[Cy]SiMe₃**
  - 61% yield
  - exo/endo > 95:5

- **[Ph][Cy]SiMe₃**
  - 73% yield

- **[Ph]SiMe₂Ph**
  - 94% yield

**Significance:** Herein, the easy-to-handle B(C₆F₅)₃-catalyzed ionic transfer hydrosilylation of various alkenes using 3-silylated cyclohexa-1,4-dienes is described. The corresponding hydrosilylated alkenes are obtained in high yields.

**Comment:** Often, work in the laboratory with Me₃SiH and Me₂SiH₂ is prohibited because of safety considerations. Since the silylated cyclohexadienes are precursors for the analogous gaseous hydrosilanes, which are generated in situ by a B(C₆F₅)₃-catalyzed release of these hydrosilanes, this protocol is a safe alternative for the hydrosilylation of alkenes.