



Synthesis and Reactivity of Cationic Silyne

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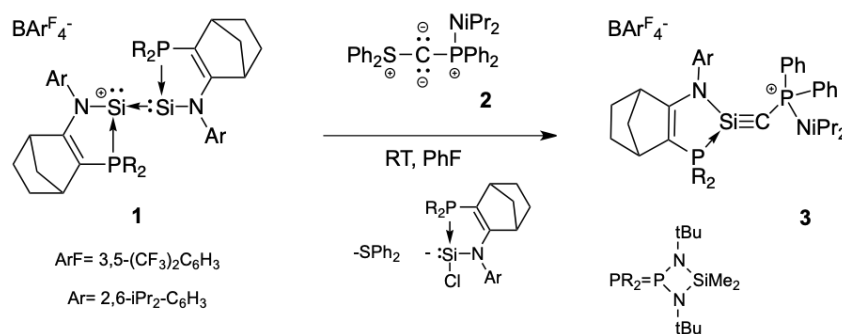
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Alkynes ($-C\equiv C-$) with an easily functionalizable doubly unsaturated group are one of the most important organic functions, which are essential for the construction of large and complex molecular architectures. Similarly, their silicon analogues, known as disilynes ($-Si\equiv Si-$), are also useful silicon-based chemical tools. Stable disilynes with various substituents have been extensively studied since their first synthesis in 2004. In contrast, the chemistry of silynes ($-Si\equiv C-$) has not been well explored due to their unstable nature. Although a transient silyn intermediate has been reported^[1] and a base-stabilised silyn with carbene character has been characterised at low temperatures,^[2] both readily undergo isomerisation, which limits their reactivity and practical applications.

Here we report an original way of synthesizing a base-stabilized silyne that can be isolated by a coupling reaction between two low valent species stabilized by a Lewis base: a silylium ion **1** and P,S-bis-yilide **2** [C(O)- complex].^[3] This silyne **3** exhibits remarkable stability at room temperature with a half-life of 7 days and enhanced reactivity compared with previously reported silynes thanks to the phosphonio substituent, which plays a particular role not only in stabilizing **3** but also in conferring its distinct chemical behaviour.



References

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