

Reactivity of Alkoxyethynyl(trimethyl)silane, -germane and -stannane towards Trialkylboranes. Organometallic-Substituted Enol Ethers

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Methoxyethynyl(trimethyl)silane (**1a**) reacts at 100 °C very slowly with triethylborane (**4**) to give a mixture of alkenes, one of which is the 1,1-organoboration product (Z)-1-methoxy-1-trimethylsilyl-2-diethylboryl-but-1-ene (**7a**). Methoxyethynyl(trimethyl)germane (**2a**) reacts within minutes at 60 – 70 °C with **4**, tripropylborane (**5**) and 9-ethyl-9-borabicyclo[3.3.1]nonane (**6**) by 1,1-organoboration in the usual regio- and stereospecific way to give the corresponding alkenes (**9a – 11a**). The analogous reactions of the ethoxyethynyl(trimethyl)germane (**2b**) require longer heating and are accompanied by decomposition of **2b**. Ethoxyethynyl(trimethyl)stannane (**3b**) reacts with the trialkylboranes **4 – 6** already below room temperature by 1,1-organoboration to give the alkenes (**12b – 14b**) in quantitative yield. The compound **3b** also reacts with the alkenes, e.g. **9a**, **13b**, **14b**, to give novel organometallic-substituted dienes. All products were characterised by multinuclear magnetic resonance spectroscopy (¹H, ¹¹B, ¹³C, ²⁹Si, and ¹¹⁹Sn NMR).

Key words: Silicon, Germanium, Tin, Enol Ethers, Boranes