Oxidative Cycloaddition of 1,1,3,3-Tetramethylidisiloxane to Alkynes Catalyzed by Supported Gold Nanoparticles

**Category**
Polymer-Supported Synthesis

**Key words**
cycloaddition
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alkynes
gold nanoparticles
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**Significance:** TiO$_2$-supported gold nanoparticles ([Au]/TiO$_2$) catalyzed the oxidative cycloaddition of 1,1,3,3-tetramethyldisiloxane (TMDS) to alkynes **1** to give the corresponding cycloadducts **2** in up to 99% isolated yield (22 examples, eq. 1).

**Comment:** The authors proposed a reaction pathway for the present oxidative cycloaddition as follows (eq. 2): (1) oxidative addition of TMDS to [Au] giving H-[Au]-Me$_2$SiOSiHMe$_2$ (A); (2) insertion of alkynes **1** into the Si–Au bond forming gold adducts **B**; (3) intramolecular elimination of H$_2$ and [Au] to give cycloadducts **2**.