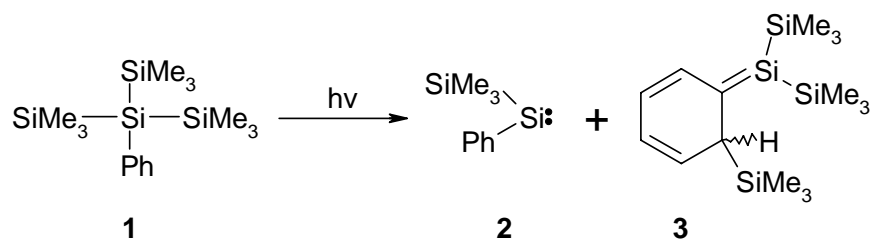


Characterization of a Transient Silylene and Silene in Solution by Laser Flash Photolysis of Phenyltris(trimethylsilyl)silane

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The photochemistry of phenyltris(trimethylsilyl)silane (**1**) has been studied in solution by steady state and nanosecond laser flash photolysis techniques with the goal of detecting and characterizing the reactivity of phenyl(trimethylsilyl)silylene (**2**), which has been reported to be the major photochemical product from **1**. Photolysis of **1** in a 3-methylpentane matrix at 78K leads to the formation of a single species exhibiting $\lambda_{\text{max}}=280\text{nm}$ and $\lambda_{\text{max}}=665\text{nm}$, which has been assigned to **2** by previous workers¹. Flash photolysis of **1** affords two transients, one that exhibits $\lambda_{\text{max}}=280\text{nm}$ and decays with $\tau=200-400\text{ ns}$ and another exhibiting $\lambda_{\text{max}}=450\text{nm}$ and $\tau\sim 200\mu\text{s}$. The long-lived species was investigated in detail and assigned to silene **3** on the basis of its reactivity with various reagents and comparison of the data with those of closely related derivatives. The short-lived species reacts at close to the diffusion controlled rate with triethylsilane and methanol, and is tentatively assigned to silylene **2** on the basis of these results.



¹ S.G. Bott, Paul Marshall, P.E. Wagenseller, Y. Wang, R.T. Conlin, *J. Organomet. Chem.* **1995**, 499, 11.