

VII. Compounds with Sulfur–Hydrogen or Selenium–Hydrogen Bonds

The rate constants for hydrogen-atom abstraction from sulfur–hydrogen and selenium–hydrogen bonds are so rapid [$k_{\text{SH}} = 1.5 \times 10^8 \text{ M}^{-1}\text{s}^{-1}$ (from $\text{C}_6\text{H}_5\text{SH}$) and $k_{\text{SeH}} = 2.1 \times 10^9 \text{ M}^{-1}\text{s}^{-1}$ (from $\text{C}_6\text{H}_5\text{SeH}$)] that abstraction typically will take place before other radical reactions (e.g., addition, cyclization, and rearrangement) can occur. (Rate constants for hydrogen-atom abstraction from various, hydrogen-atom donors, as well as rate constants for other radical reactions are given in [Chapter 8](#) of Volume I.)

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