

LETTERS
TO THE EDITOR

Selenium Dibromide as a Mild Brominating Agent

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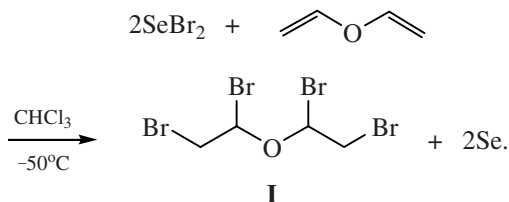
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Various brominating agents are used in the modern organic synthesis. The act differently than bromine and allow a more selective bromination.

Before our studies selenium dibromide has scarcely been used in organic synthesis. We applied this reagent in the synthesis of previously unknown 1-selena-4-silafulvenes [1–3] by addition to diethynylsilanes. It was found that selenium dibromide is a mild brominating agent which can be used in organic synthesis.

The reaction of selenium dibromide with divinyl ether (chloroform, -50°C) involves bromination of the two double bonds to form bis(1,2-dibromoethyl) ether (**I**) in 92% yield.



The reaction proceeds highly selectively and gives almost no by-products. Under the same conditions,

divinyl ether less selectively reacts with bromine, and additional purification is needed to isolate the target product.

Bis(1,2-dibromoethyl) ether (I), mp $64\text{--}65^{\circ}\text{C}$. ^1H NMR spectrum (CCl_4), δ , ppm: 3.90 m (4H, CH_2), 6.06 m (2H, CH). ^{13}C NMR spectrum (CCl_4), δ_{C} , ppm: 32.40 (CH_2), 82.90 (CH). Found, %: C 12.51, H 1.42, Br 81.51. $\text{C}_4\text{H}_6\text{Br}_4\text{O}$. Calculated, %: C 12.33; H 1.55; Br 82.01.

The NMR spectra were taken on a Bruker DPX-400 spectrometer (101.62 MHz for ^{13}C , 400.13 MHz for ^1H) against internal HMDS.

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