

Problem 57, Chemistry 301X - 2006

A mixture of two isomers of the formula  $C_5H_9IO$  is treated with a strong base, sodium hydride  $Na^+ -:H$ . Two new compounds, each  $C_5H_8IONa$  are formed. Only one of these is converted into a new compound of the formula  $C_5H_8O$ ; the other survives.

What is the structure of the  $C_5H_8O$  product, and why is only one stereoisomer reactive under these conditions?

We strongly suggest that you begin with a determination of the structures of the two stereoisomers. Next consider what are the products of the reactions with sodium hydride. Finally, explain why only one of the initial products reacts to give  $C_5H_8O$ .

two compounds

