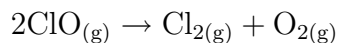


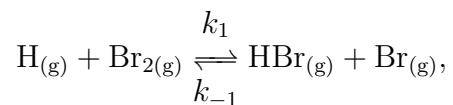
Chemistry 2710 Spring 2006 Problem Set 1

1. At a particular point in time, the rate of consumption of ClO in the gas phase reaction



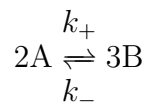
is $-1.65 \mu\text{mol L}^{-1}\text{s}^{-1}$. What is the rate of production of Cl_2 ?

2. Do you think that the reaction $2\text{ClO}_{(g)} \rightarrow \text{Cl}_{2(g)} + \text{O}_{2(g)}$ is likely to be elementary? Why or why not?
3. For the elementary reaction



$k_1 = 2.09 \times 10^8 \text{ L mol}^{-1}\text{s}^{-1}$ and the equilibrium constant is 1.5×10^{28} . What is k_{-1} ?

4. Write down rate equations for $a = [\text{A}]$ and $b = [\text{B}]$ assuming that



is an elementary reaction.