**Exercise – Rate and Stoichiometry**

1. If NOCl(g) is decomposing at a rate of 1.1 x 10–8 mol/L/min in the following reaction:

2 NOCl(g) → 2 NO(g) + Cl2(g)

a) What is the rate of formation of NO(g)?
b) What is the rate of formation of Cl2(g)?

2. Thiosufate ion is oxidized by iodine according to the following reaction:

2 S2O32–(aq) + I2 (aq) → S4O62– (aq) + 2 I–(aq)

If, in a certain experiment, 0.0080 mol of S2O32– is consumed in 1.0 L of solution each second, What is the rate of consumption of I2? At what rates are S4O62– and I– produced in this solution?

3. If the decomposition of N2O5 gas occurs at a rate of 0.20 molL–1s–1, what would be the rate of formation of NO2 gas and O2 gas if the equation for the reaction is

2 N2O5(g) → 4 NO2(g) + O2(g)

4. If ammonia gas, NH3, reacts at a rate of 0.090 mol/Ls according to the reaction

4 NH3(g) + 5 O2(g) → 4 NO(g) + 6 H2O(g)

a) at what rate does oxygen gas react under the same conditions?
b) what is the rate of formation of water?
c) what is the rate of production of nitrogen monoxide?

**Answer Key**

1. 

2. 
3. 

4. 

