Name _____ Lab Partner _____

TA Name _____ Section _____ Date _____

**Chemical Kinetics PreLab Worksheet**

1a. Select the hazardous chemical associated with this experiment.

- ☐ elemental iodine
- ☐ ammonium sulfate
- ☐ sodium persulfate
- ☐ potassium sulfate
- ☐ sodium thiosulfate

1b. Select the hazard associated with this chemical.

- ☐ irritant (causes redness in the skin and eyes)
- ☐ oxidizing agent (supplies its own oxygen and reacts violently)
- ☐ corrosive solution (causes degradation of skin upon contact)
- ☐ source of irritating vapor (causes redness in the eyes and lungs)
- ☐ reducing agent (reacts violently with water)

1c. In this lab, the chemical can be handled safely because

- ☐ it is a solid dispersed in inert powder.
- ☐ it will be in a dropper bottle.
- ☐ it is a dilute solution.
- ☐ it is in a sealed container.
- ☐ it will be used under an inert atmosphere.

2. What action should you take if you spill these materials on yourself?

3. Select the appropriate answer to the question below.
The wastes in this experiment should be

- ☐ kept in a labeled beaker at the bench, then dumped in the waste container on the side shelf at the end of lab.
- ☐ thrown in the trash can.
- ☐ flushed down the sink with water.
- ☐ saved for next weeks experiment.

4. The three reactions of importance for this experiment are shown below. The last reaction produces a color change that will be monitored during the experiment. Please put a square around the reaction whose rate law being investigated. Please select the chemical species that, when depleted, allows the color change to take place.

$$2\ I^- + S_2O_8^{2-} \rightarrow I_2 + SO_4^{2-}$$

$$I_2 + 2\ S_2O_3^{2-} \rightarrow 2I^- + S_4O_6^{2-}$$

$$I_2 + \text{starch indicator} \rightarrow \text{blue-black product}$$

5. How does the rate of the reaction below compare to the rate of change of reactants? Select all that apply.

$$2\ I^- + S_2O_8^{2-} \rightarrow I_2 + SO_4^{2-}$$

$$\text{Rate} = -\frac{\Delta[S_2O_8^{2-}]}{\Delta t} \qquad \text{Rate} = -\frac{\Delta[S_2O_8^{2-}]}{\Delta t}$$

$$\text{Rate} = -\frac{\Delta[I^{1-}]}{\Delta t} \qquad \text{Rate} = -\frac{\Delta[I^-]}{2\Delta t}$$

$$\text{Rate} = -\frac{2\Delta[S_2O_3^{2-}]}{\Delta t} \qquad \text{Rate} = -\frac{1}{2}\frac{\Delta[S_2O_3^{2-}]}{\Delta t}$$