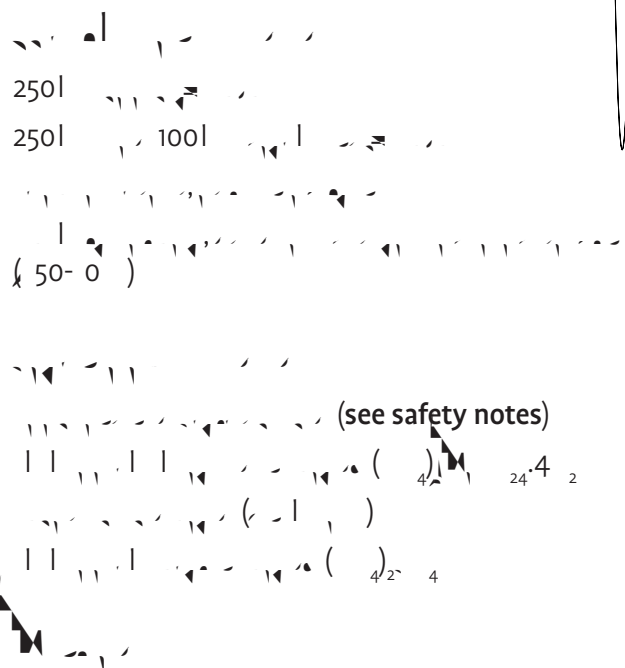


Safety

Lab coats, safety glasses and enclosed footwear must be worn at all times in the laboratory. Concentrated sulfuric acid is highly corrosive – wear rubber gloves and take care when handling. It will burn your skin, and leave a stain on your skin for some days. If you do splash some on your skin, wash it well with cold running water IMMEDIATELY. Make sure your teacher is told about it. Also, be careful of your clothes, as acid will burn holes in them. When diluting into water, ALWAYS dilute acid into water, and never add water to acid. When you heat your solutions with sulfuric acid, there is a chance that the flask could break. Make sure you have water ready to clean any spills. Your teacher or laboratory supervisor should be with you at all times when you are doing this.



Sample Preparation

1. Add 50ml of water to a 250ml beaker.
2. Add 250ml of 0.5M sulfuric acid to a 500ml beaker.
3. Add 10ml of 200ml of 0.5M sulfuric acid to a 300ml beaker.
4. Add 3ml of 0.5M sulfuric acid to a 300ml beaker.

Preparation of standard

1. Weigh 0.220 g of $\text{K}_2\text{Cr}_2\text{O}_7$ (molar mass 294.18 g/mol) and dissolve it in 100 mL of distilled water in a 250 mL volumetric flask. Dilute to the mark with distilled water. This is a 0.00075 M solution.
2. Prepare a series of standard solutions by diluting the stock solution. For example, 10 mL of the stock solution diluted to 100 mL gives a 0.000075 M solution.

Preparation of Complex

1. Weigh 0.500 g of $\text{K}_2\text{Cr}_2\text{O}_7$ and dissolve it in 100 mL of distilled water in a 250 mL volumetric flask. Dilute to the mark with distilled water. This is a 0.0017 M solution. (see safety notes).
2. Prepare a series of standard solutions by diluting the stock solution. For example, 10 mL of the stock solution diluted to 100 mL gives a 0.00017 M solution.

Colorimetric Analysis

1. Prepare a series of standard solutions by diluting the stock solution. For example, 10 mL of the stock solution diluted to 100 mL gives a 0.00017 M solution. Measure the absorbance of these solutions at 440 nm using a 1 cm path length cell.
2. Plot a calibration curve showing absorbance versus concentration. The curve should be linear and pass through the origin. (3 mL)
3. Measure the absorbance of the unknown solution at 440 nm using a 1 cm path length cell. Compare the absorbance to the calibration curve to determine the concentration of the unknown solution.

1. Weigh 0.220 g of $\text{K}_2\text{Cr}_2\text{O}_7$ and dissolve it in 100 mL of distilled water in a 250 mL volumetric flask. Dilute to the mark with distilled water. This is a 0.00075 M solution.
2. Prepare a series of standard solutions by diluting the stock solution. For example, 10 mL of the stock solution diluted to 100 mL gives a 0.000075 M solution.