# TEACHER NOTES

**LAB VIS.4**

Lab time 45 minutes

Preparations

Turn the spectrophotometers on at least 20 minutes before the lab.

**The following solutions can also be provided by the van:**

1. Prepare the **KCl - HCl buffer** at pH 1.6 by diluting 25 mL 0.2 M KCl and 16.2 mL 0.2 M HCl to 100 mL with DI H2O. The 0.2M HCl is made by diluting 1.7 ml concentrated HCl (~16M) to 100 ml.

1. Dissolve appropriate mass of any **Hydrated** Iron (III) compound in enough solvent (KCl-HCl prepared above) to make desired volume of 0.02 M Iron (III) buffer.

**DATA TABLE**

|  |  |  |
| --- | --- | --- |
| **Solution** | **Concentration (mg/L)** | **Absorbance** |
| A | 80 mg/L | .627 |
| B | 6.4 mg/L | .623 |
| C | 4.8 mg/L | .449 |
| D | 3.2 mg/L | .337 |
| *unknown* |  |  |

**amount of aspirin in unknown 3.9 mg**

**accepted value 4.0 mg**

**percent error \_\_\_\_\_\_\_\_\_\_\_\_\_2.5\_\_\_\_\_\_%**

**CONSIDERATIONS**

Orange baby aspirin does not work well with this lab. This is not available with aspirin anymore because of Reye's syndrome risks, but just in case any student might have some from the past, its use is not recommended.

The procedure states that 400 mg of reagent grade acetylsalicylic acid is to be used in preparing the standard solution. If this is not available, an Anacin tablet may be used. The label states that this brand contains 400 mg of aspirin.

This experiment is a good follow-up after performing the microsynthesis of aspirin lab to calculate the % yield of aspirin produced.

Another variation of this experiment is to study the effects of time and temperature on the degradation of aspirin. Aspirin tablet solutions are heated for various amounts of time to determine how much of the aspirin had decomposed.

**ANSWERS TO QUESTIONS**

1. Solutions are purple in color and therefore absorb green colored light. The wavelength of 530 nm corresponds to green light.

1. Answers will vary according to results.

1. Answers may vary according to results, however, students should conclude that generic brand aspirin contains the same amount of aspirin as brand names without the higher cost.

# Reference

This experiment is an adaptation of a lab taken from ***Experiments in General Chemistry*** by Weiss, Wismar, and Greco (MacMillan Publishing Co., 1983). This is the laboratory manual to accompany Petrucci's ***General Chemistry***, 3rd Ed.