

The Titrimetric Analysis of Vitamin C in Dietary Supplement

Pre-lab report must be written inside your lab notebook.

IMPORTANT: Make sure that you always follow the proper laboratory safety protocol (refer to the course syllabus) BEFORE going to the lab.

The experimental procedures for this experiment are attached to the same email and can be found on the course website (<http://www.chem.ucla.edu/~bacher/CHEM14CL/Announcements/Links.html>)

The experimental procedures for this experiment have been sent out to the students (with the same email) and are also posted on 14CL homepage under "Handouts". *You will start this experiment Tuesday, April 26, 2016 and extend through TWO lab periods*

Online Resources and Tutorials

[How are redox reactions different?](#)

Pre-lab Guidelines:

ITEMS (1.-4.) of the pre-lab are due on Tuesday, April 26, 2016 or Wednesday, April 27, 2016

1. Introduction: In this section, outline the goal(s) of the experiment as well as the experimental techniques that you will be throughout the experiment.
2. Flowchart of the procedures for the entire experiment and cite the reference for the procedure.
3. MSDS Information (**Refer to the MSDS handout for more information**)

The following chemicals will require you to use the MSDS database on the Web:

KIO₃, Na₂S₂O₃ and L-ascorbic acid

You should record the following MSDS information in your notebook for the chemicals listed above. (**Printouts directly from the Web pages will NOT be accepted!**)

- (a) Product Name
 - (b) Chemical Formula
 - (c) Formula Weight
 - (d) Melting Point; Boiling Point and Density
 - (e) Health Hazard Data (**summarize in your own words**)
 - (f) Spill and Disposal procedures (**summarize in your own words**)
4. Data & Observations (Use a NEW page for this part)

Set up BLANK DATA TABLES for the entire experiment. You will need to go through the procedure in order to see what types of data you will need to collect during the experiment.

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5. Study Questions (You MUST show ALL your work in order to receive FULL credit)

These study questions are due on Thursday, April 28, 2016 or Friday, April 29, 2016.

1. A 0.2574 g sample of KIO_3 is transferred to a 250-mL volumetric flask, dissolved and diluted to the mark with distilled water. What is the molar concentration of the KIO_3 solution?
2. A 25-mL aliquot of a 0.03816 M KIO_3 solution is titrated to the stoichiometric point with 20.97 mL of a sodium thiosulfate, $\text{Na}_2\text{S}_2\text{O}_3$, solution. What is the molar concentration of the $\text{Na}_2\text{S}_2\text{O}_3$ solution?
3. Identify the oxidizing agent and the reducing agent in the vitamin C analysis.
4. The student adds potassium iodide to the vitamin C solution. How important is it to add exactly 1.0 g of the compound? Explain briefly.
5. What is the function of the sodium bicarbonate in the reaction?
6. When exactly should the student add the starch solution to the vitamin C during the titration? Explain briefly.
7. What is the color change at the stoichiometric point in vitamin C analysis? What is the cause of the color change?