

# Oxidation-Reduction Analysis of Hydrogen Peroxide

Many oxidation-reduction reactions serve as a basis for quantitative analysis. One of the most widely used oxidizing agents is potassium permanganate,  $\text{KMnO}_4$ . It is a powerful oxidizing agent that also serves as a self-indicator. One drop in excess of the endpoint volume of a titration turns the solution a pale-pink color.

In this experiment, you will titrate a standardized solution of 0.02 M  $\text{KMnO}_4$  into a measured amount of an unknown concentration of hydrogen peroxide,  $\text{H}_2\text{O}_2$ . Your objective is to determine the percentage and molarity of  $\text{H}_2\text{O}_2$  in ordinary over-the-counter solutions of hydrogen peroxide.

## Pre-Lab Assignment:

Balance the equation for the titration reaction using the half-reaction method. The reaction takes place in acidic conditions. (Record your work in your lab notebook.)



## Materials

2 burets  
Erlenmeyer flasks  
Stir plate  
Magnetic stir bar  
Balance  
Household hydrogen peroxide  
0.02M potassium permanganate solution  
3.0 M sulfuric acid  
0.1M manganese(II) sulfate  
Distilled water

## PROCEDURE

1. Obtain and wear goggles.
2. Rinse and fill a buret with standardized  $\text{KMnO}_4$  solution. Record the molarity of the solution.
3. Determine the mass of a clean, dry Erlenmeyer flask to the correct number of significant figures, and record.
4. From the buret on the front table, record the initial volume (again, to the correct number of significant figures). Add approximately 1.5 mL of ordinary household hydrogen peroxide. Record the final buret volume.
5. Find the mass of the flask with the peroxide and record.
6. Add about 35 mL of distilled water, 5 mL of 3.0 M  $\text{H}_2\text{SO}_4$ , and 3 or 4 drops of 0.1 M  $\text{MnSO}_4$ , which acts as a catalyst.

# Analysis Of Hydrogen Peroxide Pre Lab Answer

**K Morrison**



## Analysis Of Hydrogen Peroxide Pre Lab Answer:

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a chemistry major that fills the requirements of the American Chemical Society a student needs to take a laboratory course in inorganic chemistry Most professors who teach and inorganic chemistry laboratory prefer to emphasize coordination chemistry rather than attempting to cover all aspects of inorganic chemistry because it keeps the students focused on a cohesive part of inorganic chemistry which has applications in medicine the environment molecular biology organic synthesis and inorganic materials     Introductory Chemistry Steven S. Zumdahl,1996     **Nuclear Science Abstracts** ,1970

**Green Organic Chemistry** Kenneth M. Doxsee,James E. Hutchison,2004 This lab text describes the tools and strategies of green chemistry and the lab experiments that allow investigation of organic chemistry concepts and techniques in a greener laboratory setting Students acquire the tools to assess the health and environmental impacts of chemical processes and the strategies to improve develop new processes that are less harmful to human health and the environment The curriculum introduces a number of state of the art experiments and reduces reliance on expensive environmental controls such as fume hoods Provided by publisher     **Characterization and Metrology for ULSI Technology 2005** David G.

Seiler,2005-09-29 The worldwide semiconductor community faces increasingly difficult challenges in the era of silicon nanotechnology and beyond The magnitude of these challenges demands special attention from the metrology and analytical measurements community New paradigms must be found Adequate research and development for new metrology concepts are urgently needed Characterization and metrology are key enablers for developing new semiconductor technology and in improving manufacturing This book summarizes major issues and gives critical reviews of important measurement techniques that are crucial to continuing the advances in semiconductor technology It covers major aspects of process technology and most characterization techniques for silicon research including development manufacturing and diagnostics The book also covers emerging nano devices and the corresponding metrology challenges that arise     **Journal of Solar**

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Pollution Abstracts ,1986 Indexes material from conference proceedings and hard to find documents in addition to journal articles Over 1 000 journals are indexed and literature published from 1981 to the present is covered Topics in pollution and its management are extensively covered from the standpoints of atmosphere emissions mathematical models effects on people and animals and environmental action Major areas of coverage include air pollution marine pollution freshwater pollution sewage and wastewater treatment waste management land pollution toxicology and health noise and radiation     **Journal of the Air Pollution Control Association** ,1972     **Archives of Pathology & Laboratory Medicine** ,2004

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