

04b Redox Lab (537167)

Question

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There is a 50% deduction for incorrect answers on the questions involving which elements are oxidized or reduced.

Instructions

Procedure:

1. This experiment is a demonstration . Mr. Ryan will place a level spoonful of ammonium dichromate into an evaporating dish. Place a piece of scratch paper on a lap board. Set the dish on the paper on the lap board. Obtain a 1000 mL beaker. Go to a dark place or dim the lights. Light a wood splint. Touch the lighted splint to the top of the pile of ammonium dichromate to ignite it. Quickly cover the dish with the inverted beaker. Observe. When the reaction is complete and has cooled for a few minutes, put on gloves and carefully transfer the green product (chromium(III) oxide) to the designated waste container along with the scratch paper. Clean and return the evaporating dish. Hint: 3 products, one is nitrogen gas.

2. Add about 10 mL of 0.01 M potassium permanganate solution to a 150 ml beaker. Add about 10 drops dilute sulfuric acid. Put on gloves and goggles. Now add 30% hydrogen peroxide (Caution: 30% hydrogen peroxide can cause severe burns) dropwise until the reaction is complete. Test the gas with a glowing wood splint. Hint: Mn^{2+} is colorless

3. Add about 10 mL of 0.1M potassium iodide solution to a 150 ml beaker. Add about 10 drops dilute sulfuric acid. Put on gloves and goggles. Now add 30% hydrogen peroxide (Caution: 30% hydrogen peroxide can cause severe burns) dropwise until the reaction is complete. Hint: Iodine is a product.

4. Add about 10 mL of 0.01M potassium permanganate solution to a 150 ml beaker. Add about 10 mL 0.1M NaOH. Now add enough 0.01 M $NaHSO_3$ to observe a color change. Hint: MnO_4^{2-} is green, hydrogen sulfite often changes to sulfate in redox reactions.

5. Obtain an empty aluminum can and a file. Insert the file into the can and scratch a line around the inside circumference of the can. Pour about 20 mL of 0.20 M copper(II) chloride solution into the can. Turn the can on its side and rotate the can so as to expose the copper(II) chloride to the scratched area. Slowly rotate the can for about 10 minutes. Empty the copper(II) chloride solution into the sink. Using cloth or heavy rubber gloves, grip the can and twist it apart. Observe the inside of the can.

6. This experiment is a demo. Mr. Ryan will add about 2 g powdered zinc to about 1 g powdered sulfur in a plastic dish. Mix thoroughly and transfer to a metal tray and place it in the hood. Heat the non-spoon end of a metal spoon until it is red hot with a propane torch. Touch the red-hot end of the spoon to the zinc-sulfur mix. (Caution: Keep your face clear of the mixture). Observe.

7. Demo: Generation of hydrogen demo and Exploding egg.(2 reactions)

8. Demo: Combustion of Mg with oxygen and carbon dioxide. (2 reactions)

9. Demo: Thermite reaction: potassium chlorate and sucrose, iron(III) oxide and aluminum (2 reactions)

Hint: For the reaction of the sucrose and potassium chlorate, realize that they both start as solids. There are three products: two gases and one solid.

10. Add about 2 mL of 0.1 M potassium dichromate to a small test tube. Add about 10 drops dilute sulfuric acid. Now add about 2 mL of 0.1 M iron(II) sulfate to the same test tube. Place in a test tube rack and observe for several minutes. Hint: Cr^{3+} forms a yellow solution.

1. Question Details

Lab Partners [1837468]

Enter the name(s) of your lab partner(s). (If you worked by yourself, enter "none").

2. Question Details

Objective and procedure summary [3413760]

Restate the objective in your own words using complete sentences. Summarize the steps in your procedure. (Be sure and include any safety concerns).

3. Question Details

Upload Lab Photo [3413757]

Upload a photo of the lab apparatus with your face in the photo as you perform some part of the lab. Title the image with a unique file name before you upload it. (Maybe use your initials and part of the lab title) no file selected It

4. Question Details

Redox #1 [781217]

Write the balanced net ionic equation for reaction #1.
(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

5. Question Details

Redox #2 [781220]

Write the balanced net ionic equation for reaction #2.
(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

6. Question Details

Redox #3 [781221]

Write the balanced net ionic equation for reaction #3.
(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

7. Question Details

Redox #4 [781222]

Write the balanced net ionic equation for reaction #4.
(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

8. Question Details

Redox #5 [781223]

Write the balanced net ionic equation for reaction #5.
(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

9. Question Details

Redox #6 [781224]

Write the balanced net ionic equation for reaction #6.

(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

10. Question Details

Redox #7 [781225]

Write the balanced net ionic equation for the reaction of the hydrochloric acid with the zinc metal in #7.

(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

Write the balanced net ionic equation for the reaction that took place in the egg in #7.

(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

11. Question Details

Redox #8 [781226]

Write the balanced net ionic equation for the reaction of the magnesium with the oxygen in #8.
(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

Write the balanced net ionic equation for the reaction of the magnesium with the carbon dioxide in #8.
(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

12. Question Details

Redox #9 [781227]

Write the balanced net ionic equation for the reaction of the sucrose with the potassium chlorate.
(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

Write the balanced net ionic equation for the thermite reaction.

(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

13. Question Details

Redox #10B [1878926]

Write the balanced net ionic equation for reaction #10.
(Use the lowest possible coefficients. Omit states-of-matter in your answer.)

Which element is oxidized? (use the complete name of the element)

Which element is reduced? (use the complete name of the element)

14. Question Details

Observations, Skills utilized and learning [3413764]

What observations did you make during the lab? What chemistry concepts, laws, and/or skills were necessary to complete this lab? What did you learn or re-learn? Use complete sentences.



Assignment Details

Name (AID): **04b Redox Lab (537167)**Submissions Allowed: **5**Category: **Lab**

Code:

Locked: **Yes**Author: **Ryan, Matt** (mryan@allsaintsschool.org)Last Saved: **Sep 22, 2017 02:55 PM CDT**Permission: **Protected**Randomization: **Person**Which graded: **Last****Feedback Settings**

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