

Names:

Ammonium Dichromate Lab

Introduction:

Many chemical reactions release energy in the form of heat, light, and sound. These are exothermic reactions. Exothermic reactions may occur spontaneously. They are denoted by a negative heat flow (heat is lost to the surroundings). In the lab, exothermic reactions produce heat or may even be explosive.

Materials:

- Ammonium Dichromate
- Aluminum foil
- Watch dish
- Matches
- Scale
- Gloves

Pre-lab Questions:

The chemical reaction for this lab is:



- A. What type of chemical equation is this (Composition)? What type of reaction is this (Energy)?
- B. Research and list the top three concerns of Ammonium Dichromate.
- C. Why is this reaction being completed in the fume hood?
- D. List three different predictions for what you think will happen in the lab.

- E.** Make an educated guess using the information provided in this lab and prior classes to formulate a hypothesis. Your hypothesis should be a complete sentence predicting what will happen to the mass after ammonium dichromate is reacted with a lit match.

Procedures:

1. Read all of procedures before participating in the lab.
2. Place all needed materials in the hood vent.
3. Record all observations identified after this point.
4. Wrap the watch dish in aluminum foil.
5. Weigh out 10g of Ammonium Dichromate using a 25mL beaker.
6. Record this value into your data table.
7. Light a match and ignite the ammonium dichromate.
8. Quickly retract your hand and observe.
9. After the reaction is complete weigh again.
10. Record this value into your data table.
11. Calculate the mass change from before the reaction to after the reaction.
12. When completed gather data from three other groups to serve as other trials.
13. Calculate the average value of the change in mass.
14. A thumbs up will indicate that you are prepared to complete the lab.

Observations (make a list):

Data:

Mass (g)	Trial 1	Trial 2	Trial 3	Trial 4	Average
Initial					
Final					
Δ Mass					

Analysis:

The chemical reaction for this lab is:



F. What is the chemical reaction written as a word formula (include the state of matter for each compound)?

G. Did the mass change? If so, did it increase or decrease?

H. What percentage of mass was lost? Formula: $(\text{Initial Mass} - \text{Final Mass}) / (\text{Initial Mass}) \times 100$

I. Where did the loss in mass go?

J. What is the chemical compound that the initial mass refers to?

K. What is the molar mass of this compound?

- L.** Using the initial mass, calculate the moles of this compound.
- M.** Using the number of moles of the compounds, calculate the number of molecules of the compound.
- N.** What is the chemical compound that the final mass refers to?
- O.** What is the molar mass of this compound?
- P.** Using the final mass, calculate the moles of this compound.
- Q.** What is the percentage of oxygen elements in this compound?
- R.** Consider the final mass of the product, what is the mass of oxygen in this compound?
- S.** For every mole of ammonium dichromate formed, how many moles of nitrogen gas is formed? How many moles of water are formed?

Conclusion:

T. What was trying to be determined by the lab?

U. Was the hypothesis correct? Defend why or why not.

V. Restate in a few sentences the main results and your explanation of the results.

W. Are there any errors or odd values in the data? If so, give an explanation of the data and hypothesizing what may have caused them.

X. Summarize the observations recorded for this lab.

Y. What did you learn from this lab or what additional question would you want to investigate further?

Z. Describe a real-life situation that uses ammonium dichromate.

AA. Describe how the main idea of this experiment applies to understanding other areas of science or use other concepts in science to discuss the results of this experiment. You will probably need to do some research here.