

Name:

Period:

LAB 23: ENDOTHERMIC REACTIONS

BACKGROUND

We have read that chemical reactions can be divided into two categories, exothermic and endothermic. We have seen several examples of exothermic reactions in class (sodium exploding, $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$, etc.). Exothermic reactions give off heat during the reaction process. This happens because more energy is released when the bonds form in the products than is required to break the bonds in the reactants.

Exothermic Reaction	Endothermic Reaction

An endothermic reaction is the opposite. More bond energy is required to break the bonds in the reactants than is released when the bonds form in the products.

PROBLEM

How can we tell that an endothermic reaction is happening?

HYPOTHESIS

MATERIALS

- ◆ beaker (150mL)
- ◆ watch glass
- ◆ triple-beam balance
- ◆ thermometer
- ◆ stopwatch
- ◆ chemical scoop
- ◆ 3% acetic acid solution ($\text{HC}_2\text{H}_3\text{O}_2$)
- ◆ sodium bicarbonate (HNaCO_3)
- ◆ ring stand & thermometer clamp
- ◆ water
- ◆ apron & goggles

RESULTS

In a short paragraph (4 – 6 sentences), summarize what you observed and the data you collected.

SUMMARY

1. What evidence do you have that a chemical reaction took place?
Refer to your textbook where it describes how you know a chemical reaction is taking place.
2. Graph your data of the endothermic reaction
3. Describe the pattern in the data
4. What do you expect the graph of an exothermic reaction to look like?