

Science 9-Chemistry

Mini-Lab on Reaction Heats



Name _____

Purpose:

To examine two reactions and see if they **absorb** or **release** heat to the surroundings.

Procedure:

PART 1

1. Put on a pair of goggles and an apron.
2. Get a 100 mL beaker, take it to a balance, turn the balance on, put it on the balance and then press “Zero” or “Tare”.
3. Using the method outlined by your teacher, add 3.0 grams of sodium hydrogen carbonate to the beaker.
4. Get a test tube and put it in a test tube rack. Using a graduated cylinder, add 20 mL of 3M hydrochloric acid to the test tube.
5. Using a thermometer, measure the initial (starting) temperature of the hydrochloric acid in the test tube.

The initial temperature is _____ °C.

6. Slowly add the hydrochloric acid to the beaker with the sodium hydrogen carbonate.

Observe what happens. _____

7. Using the thermometer, record the final temperature of the mixture in the beaker.

The final temperature is _____ °C.

8. Calculate the temperature change _____ °C. Did the temperature go up or down? _____.

9. Did this reaction absorb heat from the surroundings or give off heat to the surroundings?

10. Was this reaction **endothermic** or **exothermic**? _____

PART 2

1. Rinse out the test tube from Part 1 and fill it half full of tap water. Put it in your test tube rack.
2. Record the initial temperature. The initial temperature is _____ °C.
3. Call your teacher. He will add a few drops of concentrated sulphuric acid to your test tube.
4. Touch the test tube carefully with the back of your hand. Is it hot or cold? _____
5. Record the final temperature with the thermometer. The final temperature is _____ °C.
6. Calculate the temperature change _____ °C. Did the temperature go up or down? _____.
7. Did this reaction absorb heat from the surroundings or give off heat to the surroundings?

8. Was this reaction **endothermic** or **exothermic**? _____