

Name _____ Date _____ Block _____

Heating of Calcium Carbonate

Purpose: To change calcium carbonate into other forms and to identify various forms of reactions.

Background:

Chalk's chemical formula is : CaCO_3

Phenolphalein is pink in a base, clear in an acid

(OH) is a base.

(H) is an acid

Diagram (full set up):

1. Set up according to diagram.
2. Put a $\frac{1}{4}$ piece of chalk into a test tube, heat for 10 min.
3. After 5-6 minutes light a wood splint and place in test tube, if flame goes out CO_2 is present. If it makes a popping noise O_2 is present.

What happened? Is CO_2 or O_2 present?

4. While chalk is heating, put another $\frac{1}{4}$ piece of chalk into 75 ml of water
5. Try to break it into small pieces by squeezing with forceps.
6. Dispose of this chalk, pour water down drain, and chalk into garbage can.
7. Turn off Bunsen Burner after 10 minutes, let the test tube cool.
8. Use gloves to dump heated chalk from test tube and place into glass beaker.
9. Add approximately 75 mL of water to the beaker.
10. Break the chalk up with the same way as you did forceps, compare ease of breaking to first one.

Observations: (Compare the ease of breaking up $\frac{1}{4}$ of chalk _____

Diagram (filtering solution):

11. Filter the solution using a funnel and filter paper into another test tube.
12. Fill the test tube half full.
13. Add 4 drops of Phenol
14. Make observations about the solution.
15. Use a straw and gently blow bubbles in the solution for 2 min
16. Make observations

Observations: _____

Conclusion:

1. When heating the chalk the following reaction occurred:
 $\text{CaCO}_3 \rightarrow \text{CaO} + \text{_____}$ (O_2 or CO_2)
2. What type of reaction is this? (Synthesis, decomposition, combustion, single, or double replacement)
3. When adding water to the heated chalk the following reaction occurs:
 $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2$ Is this equation balanced? Yes or No
4. What type of reaction is this? (Synthesis, decomposition, combustion, etc)
5. When you blow bubbles into the solution this happens
 $\text{Ca(OH)}_2 + \text{CO}_2 \rightarrow \text{CaCO}_3 + \text{H}_2\text{O}$ Is this equation balanced? Yes or No
6. What type of reaction (in #5) is this? (Synthesis, decomposition, combustion, etc)