**Preparation of Calcium Carbonate Lab**

**Prelab:**

In this laboratory activity you will produce calcium carbonate from aqueous solutions of calcium chloride and sodium carbonate. You will also determine your % yield, limiting reactant, and excess reactant.

**Procedure:**

1. Put on safety goggles.

2. Identify the two clean beakers. Rinse the inside of the beakers with a small amount of distilled water.

3. Obtain between two to two and a half grams of calcium chloride and two and a half to three grams of sodium carbonate. Enter these masses in the data table.

4. Add the calcium chloride to one beaker. Add enough distilled water to dissolve the calcium chloride, usually between 40-60 mL. Stirring will aid the dissolution process. Avoid using an excessive amount of water so the filtration does not take too long.

5. Add the sodium carbonate to the other beaker. Add enough distilled water to dissolve the sodium carbonate, usually between 40-60 mL. Stirring will aid the dissolution process. Avoid using an excessive amount of water so the filtration does not take too long.

6. Pour the calcium chloride solution and the sodium carbonate solution into the third, “chalky” beaker. Record observations.

7. While waiting for the solid to settle slightly, write both names on a piece of filter paper and record its mass.

8. Set up a funnel, filter paper, and flask. Wet the filter paper with a small amount of distilled water.

9. Pour the contents of the beaker slowly into the funnel. Be careful as you pour, so none of the solid flows above the filter paper. Use the rubber policeman to remove as much of the solid from the beaker as possible. Rinse the beaker and policeman with distilled water to remove any remaining solid. Rinse the beaker two or three times IF time allows.

10. Once all of the solid is in the filter paper and the liquid has all drained through into the beaker, carefully remove the filter paper from the funnel and place where instructed. Record the final mass tomorrow after the product has dried overnight.

11. Pour the filtrate down the drain and clean up all of your glassware and lab bench area.

**Prelab Calculations:**

1. Write a balanced equation for the reaction of sodium phosphate and barium chloride.

2.When 0.629 grams of sodium phosphate and 0.527 grams of barium chloride react how much solid product can form?

3.Which is the limiting reactant?

4.Write the balanced chemical equation for the experiment that we are doing in lab.

**Data:**

Create atable which includes at a minimum, mass of calcium chloride, mass of sodium carbonate, mass of dry filter paper and mass of filter paper and dry solid.

**Calculations:**

1. Determine the theoretical yield of calcium carbonate.

2. Identify the limiting and excess reactants in this reaction.

3. Determine the mass of calcium carbonate produced.

4. Determine the percent yield for calcium carbonate.

**Post Lab Questions:**

1. What is your % yield of calcium carbonate?
2. Explain why your %yield is not 100%. What factors played a role? Support your answer with evidence. (if it is 100%, can that be true?)
3. If you had a chance to redo this lab, how would you choose to dry your solid? What instruments would you use?

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