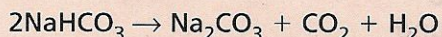


Baking Soda Stoichiometry

Predicting When baking soda is an ingredient in your recipe, its purpose is to make the batter rise and produce a product with a light and fluffy texture. That's because baking soda, or sodium hydrogen carbonate (NaHCO_3), decomposes upon heating to form carbon dioxide gas.



Predict how much sodium carbonate (Na_2CO_3) is produced when baking soda decomposes.

Materials ring stand, ring, clay triangle, crucible, crucible tongs, Bunsen burner, balance, 3.0 g baking soda (NaHCO_3)

Procedure 

1. Measure the mass of a clean, dry crucible. Add about 3.0 g of NaHCO_3 and measure the combined mass of the crucible and NaHCO_3 . Record both masses and calculate the mass of the NaHCO_3 .

2. Use this starting mass of baking soda and the balanced chemical equation to calculate the mass of Na_2CO_3 that will be produced.

3. Set up a ring stand with a ring and clay triangle for heating the crucible.
4. Heat the crucible slowly at first and then with a stronger flame for 7–8 min. Use tongs to remove the hot crucible. Record your observations during the heating.
5. Allow the crucible to cool and then obtain the mass of the crucible and sodium carbonate.

Analysis

1. What were your observations during the heating of the baking soda?

2. How did your calculated mass of sodium carbonate compare with the actual mass you obtained from the experiment? If the two masses are different, suggest reasons for the difference.
