SEE PRE-LAB
EXTRACTION AND FILTRATION

# Stoichiometry and Gravimetric Analysis

## OBJECTIVES

- ***Observe*** **the double-displacement reaction between solutions of strontium chloride and sodium carbonate.**
- ***Demonstrate*** **proficiency with gravimetric methods.**
- ***Measure*** **the mass of the precipitate that forms.**
- ***Relate*** **the mass of the precipitate that forms to the mass of the reactants before the reaction.**
- ***Calculate*** **the mass of sodium carbonate in a solution of unknown concentration.**

## MATERIALS

- **15 mL $Na_2CO_3$ solution of unknown concentration**
- **50 mL 0.30 M $SrCl_2$ solution**
- **50 mL graduated cylinder**
- **250 mL beakers, 2**
- **balance**
- **beaker tongs**
- **distilled water**
- **drying oven**
- **filter paper**
- **glass funnel or Büchner funnel with related equipment**
- **glass stirring rod**
- **paper towels**
- **ring and ring stand**
- **spatula**
- **water bottle**

## BACKGROUND

This gravimetric analysis involves a double-displacement reaction between strontium chloride, $SrCl_2$, and sodium carbonate, $Na_2CO_3$. This type of reaction can be used to determine the amount of a carbonate compound in a solution. For accurate results, essentially all of the reactant of unknown amount must be converted into product. If the mass of the product is carefully measured, you can use stoichiometric calculations to determine how much of the reactant of unknown amount was involved in the reaction.

## SAFETY

For review of safety, please see **Safety in the Chemistry Laboratory** in the front of your book.

## PREPARATION

1. Make a data table that has 2 columns and 5 rows. In the first column write each of the following phrases in a separate row: "Volume of $Na_2CO_3$ solution added"; "Volume of $SrCl_2$ solution added"; "Mass of dry filter paper"; "Mass of beaker with paper towel"; "Mass of beaker with paper towel, filter paper, and precipitate."
2. Clean all of the necessary lab equipment with soap and water, and rinse with distilled water.
3. Measure the mass of a piece of filter paper to the nearest 0.01 g, and record it in your table.
4. Set up a filtering apparatus. Use the Pre-Laboratory Procedure "Extraction and Filtration."