# Volumetric Analysis

**Volumetric analysis, the quantitative determination of the concentration of a solution, is achieved by adding a substance of known concentration to a substance of unknown concentration until the reaction between them is complete. The most common application of volumetric analysis is titration.**

**A buret is used in titrations. The solution with the known concentration is usually in the buret. The solution with the unknown concentration is usually in the Erlenmeyer flask. A few drops of a visual indicator are also added to the flask. The solution in the buret is then added to the flask until the indicator changes color, which signals that the reaction between the two solutions is complete. Then, the volumetric data obtained and the balanced chemical equation for the reaction are used to calculate the unknown concentration.**

FIGURE A

## GENERAL SAFETY

Always wear safety goggles and a lab apron to protect your eyes and clothing. If you get a chemical in your eyes, immediately flush the chemical out at the eyewash station while calling to your teacher. Know the location of the emergency lab shower and eyewash station and the procedure for using them.

The general setup for a titration is shown in Figure A. The steps for setting up this technique follow.

## ASSEMBLING THE APPARATUS

1. Attach a buret clamp to a ring stand.
2. Thoroughly wash and rinse a buret. If water droplets cling to the walls of the buret, wash it again and gently scrub the inside walls with a buret brush.
3. Attach the buret to one side of the buret clamp.
4. Place an Erlenmeyer flask for waste solutions under the buret tip, as shown in Figure A.