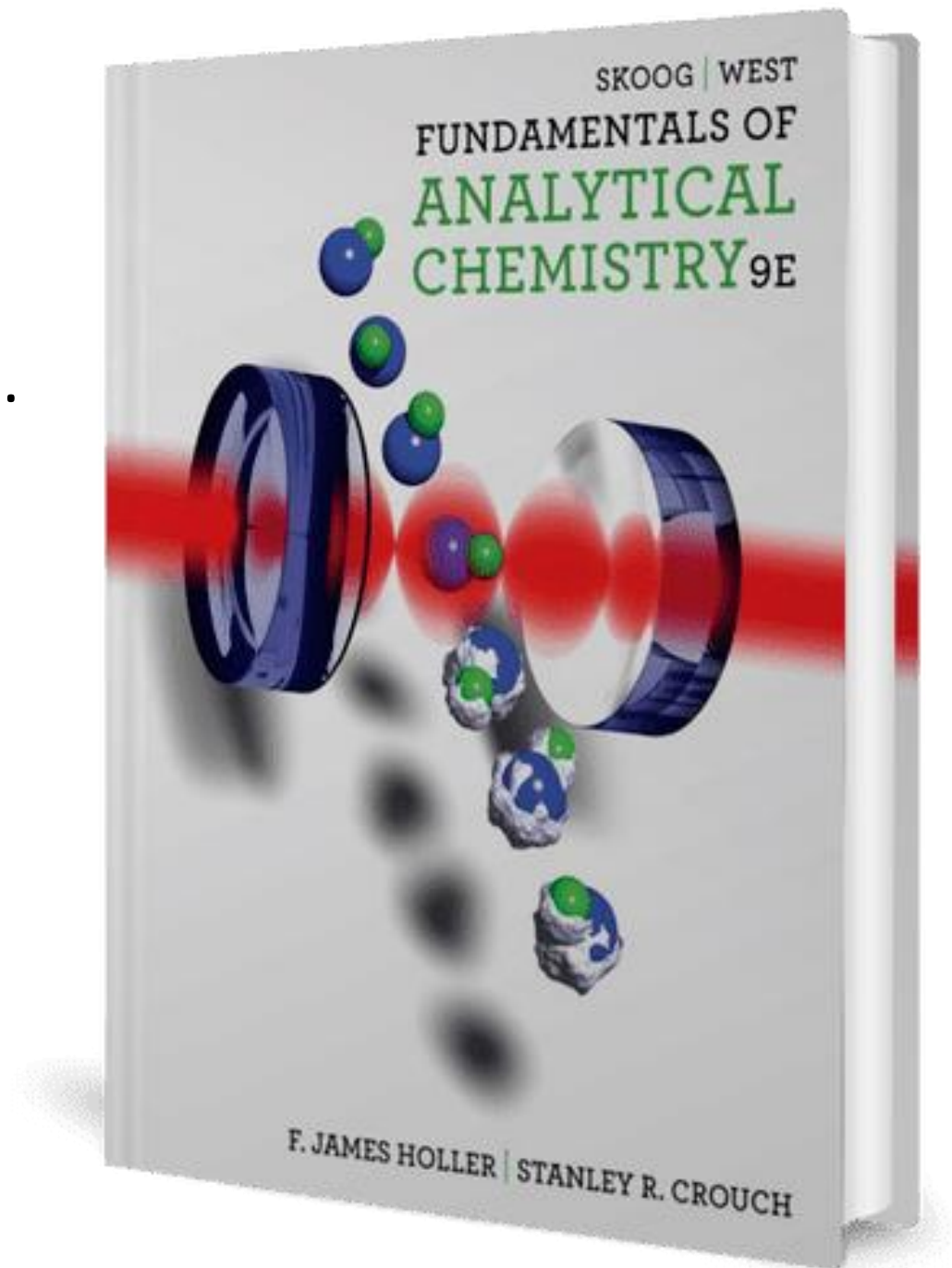


ANALYTICAL CHEMISTRY

Reference

Skoog DA, West DM, Holler FJ, Crouch SR.
Fundamentals of Analytical Chemistry.
Nelson Education; 2013.



Read the details of the information given below from Skoog and West's "Fundamentals of Analytical Chemistry" book, which is recommended as a reference.

This content has been prepared for educational purposes only and the responsibility for copying and sharing belongs to third parties.

The Nature of Analytical Chemistry

The Role of Analytical Chemistry

Quantitative Analytical Methods

Typical Quantitative Analysis

Feedback Control Systems

Analytical chemistry

Measurement science consisting of a set of powerful ideas and methods that are useful in all fields of science, engineering, and medicine.

Both qualitative and quantitative information are required in an analysis.

Qualitative analysis: The chemical identity of the species in the sample.

Quantitative analysis: The relative amounts of these species, or analytes, in numerical terms.

Analyte: The components of a sample that are determined.



1B Quantitative analytical methods

Computing the results of a typical quantitative analysis from two measurements:

- The mass or the volume of sample being analyzed.
- Some quantity that is proportional to the amount of analyte in the sample.

- **Gravimetric methods**
- **Volumetric method**
- **Electroanalytical methods**
- **Spectroscopic methods**
- **Miscellaneous methods**

1C Typical quantitative analysis

- **Measurement step:** measure one of the physical properties.
- **Calculation step:** find the relative amount of the analyte present in the samples.
- **Final step:** evaluate the quality of the results and estimate their reliability.

1. Choosing a method
2. Acquiring the sample
3. Processing the sample
 - Preparing a laboratory sample
 - Defining replicate samples
 - Preparing solutions
4. Eliminating interferences
5. Calibrating and measuring concentration
6. Calculating results
7. Evaluating results by estimating reliability

1D An integral role for chemical analysis: feedback control systems

The process of continuous measurement and control is often referred to as a **feedback system**, and the cycle of measurement, comparison, and control is called a **feedback loop**.