CEM 162 - CHEMISTRY LABORATORY II

Description: Analytical and inorganic chemistry; redox and acid base titrations; spectrophotometric and gravimetric analysis; preparation and analysis of coordination complexes of nickel, iron and cobalt.

Credit: 1 credit (0 hours of lecture and 3 hours of lab)

Prerequisite: CEM 161 or LBS 171L or CEM 185H and CEM 142 or concurrently and CEM 152 or concurrently. Not open to students with credit in LBS 172L, or CEM 186H.

Experiments are:

1. The Preparation and Properties of Copper(I) Chloride
2. Chemical Kinetics: The Formaldehyde Clock Reaction
3. Chemical Equilibria: The Formation of an Iron-Thiocyanate Complex
4. The Preparation of Sodium Bicarbonate by the Solvay
5. The Eudiometric Analysis of Sodium Bicarbonate
6. The Preparation of Potassium Tris(oxalato)ferrate (III) Hydrate
7. The Standardization of Solutions
8. The Analysis of Oxalate by Redox Titration
9. The Spectrophotometric Determination of Iron and the Gravimetric Determination of Water
10. The Preparation of a Nickel-Ammine Complex and a Kjeldahl Determination of Ammonia
11. The Gravimetric Determination of Nickel
12. The Spectrophotometric Determination of the Stiochiometry of the Nickel-Ammine Complex

Additional or alternative experiments:

13. The Preparation of Chloro, Nitro, and Nitrito Pentaamminecobalt (III) Complexes; Infrared Spectroscopy
14. The Preparation of Triamminetrinitrocobalt (III) and its Characterization by Infrared Spectroscopy
15. The Reaction of Tris(ethylenediamine) cobalt (III) Bromide to Produce the Dinosarcobalt (III) Clathrochelate Complex Ion
16. Paper Chromatography of Transition Metal Salts and Development by Complex Formation