MANGALORE UNIVERSITY

Department of Industrial Chemistry

ICP 506: INORGANIC CHEMISTRY PRACTICALS-III

Course Outcomes:

Students get hands on experience on

- Advance techniques in gravimetric and volumetric analysis.
- Experiments based on environmental chemistry.

1. Analysis of brass–Cu gravimetrically using ∝-Benzoinoxime & Zn complexometrically.
2. Analysis Cu-Ni alloy.
3. Analysis of Stainless Steel-Insoluble residue by gravimetry, Ni gravimetrically using DMG,
4. Fe volumetrically using Ce(IV) & Cr(III) volumetrically by persulphate oxidation.
5. Flame photometric determination of Na, K mixtures.
6. Chemical Separation Techniques

a. Cu(II) + Fe(II)-Cu gravimetrically as CuSCN and Fe using Ce(IV).
b. Cu(II) + Ni(II)-Cu gravimetrically as CuSCN and Ni using EDTA.
c. Fe(III) + Ca(II)-Fe gravimetrically as Fe_2O_3 and Ca using EDTA.
d. Cr(III) + Fe(III)-Using EDTA by Kinetic masking method.

7. Analysis of chalcopyrites, magnetite and ilmenite.
8. Ion-exchange chromatography: Separation & determination of Mg^{2+}/Zn^{2+}, Zn^{2+}/Cd^{2+} & Cl^-/Br^-
9. Determination of COD of a water sample
10. Determination of dissolved oxygen (DO) by Winkler's method
11. Determination of nitrate & nitrite in water samples and sea water.
12. Analysis of heavy metals in waste water, sea water (Pb, Hg etc. By spectrophotometry)
13. Determination of available NPK in soil and Fertilizer analysis.
14. Nephelometric determination of sulphate/phosphate.
15. Determination of alkalinity of water samples
16. Determination of fluoride in drinking water by spectrophotometry and ion selective electrode
17. Determination of phosphates in detergents
18. Spectrophotometric determination of sulphur and phosphorus present in soil.
19. Any other experiment of interest: Oil analysis using IR.

References

1. A Text book of Quantitative Inorganic Analysis, A.I. Vogel, ELBS, 1978.
2. Standard Method for the Examination of Water and Waste Water, APHA, AWWA and WPCF, Washington DC,1989.
3. Quantitative Chemical Analysis, I. M. Kolthof and E.P. Sandell, McMillan, 1980.
4. Environmental Chemistry, I.Williams, Wiley, 2001
5. Comprehensive Analytical Chemistry, Lobinski and Marczenko, Vol.30, Elsevier, 1996.