

Metal Speciation: Theory, Analysis and Application, edited by J.R. Kramer and H.E. Allen, Lewis Publishers, Chelsea, MI, 1988, 357 pp., US \$49.95.

There is currently much concern over metal impact on the environment. Acid precipitation and its propensity to release metals into environmental systems and the recently increased popularity of disposal of wastewater treatment plant sludge on agricultural lands (with a concomitant increase in metal concentration of the soil) are two very real manifestations of that concern.

Simultaneously there have been significant progress in understanding the fate and transport of trace metals in environmental systems. This book adds to that. It is an outgrowth of a workshop held in Georgia in May 1987. The workshop brought together experts in the field of analytical, chemical, environmental engineering, nutritionists, oceanographers and soil chemists.

The book has 15 separate chapters written by a total of 25 authors – two of whom I personally know as recognized experts in the field. Three main areas are covered in these chapters: theory, measurement, fate and effect.

The specific chapter titles are:

1. Thermodynamic calculations with special reference to the aqueous aluminum system.
2. Coordination chemistry at the solid/solution interface.
3. Introduction to interaction of organic compounds with mineral surfaces.
4. Reactions and transport of trace metals in groundwater.
5. Combining field measurements for speciation in non-perturbable water samples.
6. Comparison of anodic stripping voltammetry data with empirical model predictions of pCu.
7. Measurements of binding site concentration in humic substances.
8. Chromatographic approaches to trace element speciation.
9. Partitioning of trace metals in sediments.
10. Comparative marine chemistries of the platinum group metals and their periodic table neighbors.
11. Metal speciation and interactions among elements affect trace element transfer in agricultural and environmental food-chains.
12. Trace metal speciation on sediments and soils.
13. Transport bioaccumulation and toxicity of metals and metalloids in microorganism under environmental stress.
14. Interaction that influence bioavailability of essential metals.
15. Metal treatment and recovery.

GARY F. BENNETT