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Contents in Context
Environmental Chemistry, Vol. 3(6), 2006

A Field Investigation of Solubility and Food Chain Accumulation of Biosolid-Cadmium Across Diverse Soil Types
Mike J. McLaughlin, Mark Whatmuff, Michael Warne, Diane Heemsbergen, Glenn Barry, Mike Bell, David Nash, Deb Pritchard
Environ. Chem. **2006**, *3*, 428

Cadmium is a potentially toxic metal that is an unwanted contaminant in urban wastewater biosolids, and has the potential to accumulate through the food chain. This study found that the accumulation of cadmium in wheat grain from application of urban biosolids to soils in Australia was less than when cadmium was applied in a water-soluble form. The critical soil cadmium concentration, above which wheat grain would exceed food contaminant limits, could also be simply predicted using soil pH (acidity) and clay content.

Rate of Cd^{2+} Release from Dissolved Fulvic Acid and Natural Dissolved Organic Carbon as a Function of UV_B Dose
R. Néron, J. C. Auclair, C. Fortin
Environ. Chem. **2006**, *3*, 433

Atmospheric ozone depletion results in an increase of UV_B radiation impinging on the surface waters of aquatic ecosystems. Radiative absorption by dissolved humic substances results in bleaching and photochemical decomposition to smaller molecular weight dissolved components. With respect to the lake biota, this can reduce the effectiveness of a natural absorptive protective UV screen, as well as enrich the surface waters with microbial substrates and previously bound biologically unavailable trace metals. In controlled experiments using low-level Cd-contaminated dissolved fulvic acids and natural lakewater dissolved organic carbon, we examine the relationship between increasing UV dose and cadmium free-ion (Cd^{2+}) concentrations.

Log D_{OW}: Key to Understanding and Regulating Wastewater-Derived Contaminants
Martha J. M. Wells
Environ. Chem. **2006**, *3*, 439

Worldwide, surface water is a source of drinking water and is a recipient of wastewater effluents and pollutants. Many surface water bodies undergo a natural, cyclical, diurnal variation in pH between 7 and 9. Most drinking water and wastewater treatment in the United States is conducted between pH 7 and 8. The pH of water undergoing treatment processes directly impacts the ratio of nonionized to ionized chemical form(s) present, which in turn impacts the success rate of contaminant removal. Many organic wastewater-derived contaminants are very water soluble at pH 7–8 and are inadequately treated.

Mobile Voltammetric Laboratory for Ship-Board and Shore-Based Analyses of Dissolved Copper
Sarah Knight, Nicholas Morley, Dónal Leech, Rachel Cave
Environ. Chem. **2006**, *3*, 450

Determining concentrations of dissolved copper in seawater is of interest, because copper (i) affects the health of aquatic biota, and (ii) has the potential to act as a water mass tracer, a marker which can be used to follow the movement of water in oceans. In situ analyses of copper and other trace metals in seawater have become increasingly popular, because they circumvent potential contamination problems associated with sample collection, storage, and transport to off-site analysis locations. This paper describes the assembly of a low-cost, mobile laboratory utilizing adsorptive cathodic stripping voltammetry (AdCSV) for the real-time determination of total dissolved copper in surface waters.