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Contents in Context
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Sequestration and retention of uranium(VI) in the presence of hydroxylapatite under dynamic geochemical conditions

Dawn M. Wellman, Julia N. Glovack, Kent Parker, Emily L. Richards and Eric M. Pierce *Environ. Chem.* **2008**, *5*, 40

Contamination of surface and subsurface geologic media by heavy metals and radionuclides is a significant problem within the United State Department of Energy complex as a result of past nuclear operations. Numerous phosphate-based remediation strategies have been proposed to introduce hydroxylapatite directly or indirectly (i.e. through in situ precipitation) into subsurface regimes to act as an efficient sorbent for sequestration of metals and radionuclides such as uranium. Results presented here illustrate the importance of variable geochemical conditions on the mechanism of sequestration and long-term retention of uranium in the presence of hydroxylapatite.

Distributions and fluxes of contaminant metals in the North Sea: comparisons between field measurements and model simulations using NOSTRADAMUS

A. D. Tappin, P. J. Statham, J. D. Burton and S. Gellers-Barkmann *Environ. Chem.* **2008**, *5*, 51

The North Sea, which is of significant ecological, economic and recreational value to NW Europe, has for many years received enhanced inputs of contaminant metals arising from human activity around its shores. Fluxes of copper, nickel, zinc, chromium and other constituents throughout the southern North Sea were estimated using a numerical model in order to identify the main sources and sinks for these metals. Comparison of model output with independent and other data showed good agreement in general. The results indicate that models of the kind developed here can be used to provide useful information on contaminant metal transport in coastal waters.

Fluoride removal from aqueous solution by Ca-pretreated macrophyte biomass

Patricia Miretzky, Carolina Muñoz and Alejandro Carrillo-Chávez *Environ. Chem.* **2008**, *5*, 68

Fluoride concentrations in drinking water above 1.5 mg L^{-1} may be detrimental to human health. Many methods have been developed for removing excessive fluoride from drinking water. The use of an aquatic macrophyte biomass (*Eleocharis acicularis*) pretreated with Ca^{2+}, a low-cost natural material, could be a technique for rural populations in developing countries that cannot afford treated or bottled water for daily consumption.

Aluminoborosilicate waste glass dissolution under alkaline conditions at 40°C: implications for a chemical affinity-based rate equation

E. M. Pierce, E. L. Richards, A. M. Davis, L. R. Reed and E. A. Rodriguez *Environ. Chem.* **2008**, *5*, 73

The production of nuclear materials has generated a very large amount of highly radioactive wastes that need to be disposed of in a manner that will keep them from posing a danger for millions of years until the radioactivity decays. The process being considered for this daunting task is to contain the wastes in glass. Although studies with ancient and natural glass suggest the weathering of glass is slow, experiments are being conducted to determine the impact of this material on the natural environment and attempt to predict its long-term behaviour. The present paper briefly discusses three models that are being considered for implementing this process and the one that appears to hold the most promise.