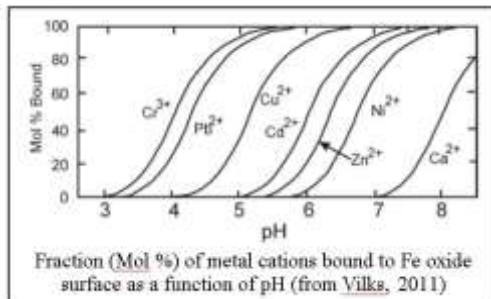




OCTOBER TECH TIP

Metals Sorption and pH

At the ambient pH of most aquifers many dissolved metals (Ag, Ba, Cd, Cr, Cu, Fe, Li, Mn, Ni, Pb, Zn) are present as positively charged ions (cations). Transport of these dissolved cations is often controlled by sorption to negatively charged surfaces including sediment iron oxides (e.g., goethite, ferrihydrite, and hematite).



At low pH, iron oxides take on a positive charge and sorption of metal cations is low. However, as pH increases, the surface charge of iron oxides (and other minerals) becomes negative and sorption of metal cations increases. As a result, many metals sorb much more strongly at neutral to alkaline pH. The figure shows the expected distribution of several different metals to Fe oxide surface as a function of pH. For many cations, the extent of sorption increases rapidly over a narrow pH range, commonly referred to as a 'sorption edge'

Reference: Vilks, P., 2011. Sorption of Selected Radionuclides on Sedimentary Rocks in Saline Conditions -Literature Review, NWMO TR-2011-12, Atomic Energy of Canada Limited.

Recent Webinar Slides and Recording Available

The recording and PDF webinar slides for Dr. Frank Loeffler's "The Fate of Vinyl Chloride in Aquifers" is now available on the EOS Remediation website. For the recording, please click [here](#). To view the PDF slides of the webinar, click [here](#).

Upcoming Events

31st Annual International Conference on Soils, Sediments, Water, and Energy

Booth # B19
October 19 - 22, 2015
Amherst, MA

Contaminated Site Management: Sustainable Remediation & Management of Soil, Sediment, and Water

November 16 - 19, 2015
San Diego, CA

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