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NI SORPTION ON PYROPHYLLITE: EVIDENCE FOR THE TRANSFORMATION OF LAYERED NI-AL DOUBLEHYDROXIDE INTO A PHYLLOSILICATE PRECURSOR. **A.C. Scheinost**, R.G. Ford, K.S. Scheckel, and D.L. Sparks), Department of Plant and Soil Sciences, University of Delaware, Newark, DE, 19711

Former EXAFS studies have shown that precipitates formed when Ni or Co were reacted with Al-containing clay minerals. The exact structure and composition of these precipitates is, however, still disputed. We used a combination of four techniques, EXAFS, DRS, FTIR, and high-resolution thermogravimetry to monitor the reaction of Ni with pyrophyllite over 12 months. Within 5 minutes, an Al-containing double hydroxide with nitrate in the interlayer formed. Release of Si from the pyrophyllite caused the exchange of interlayer nitrate by silicate, and the subsequent gradual polymerization of silicate led to the formation of a Ni phyllosilicate precursor. This transformation substantially enhanced the stability of the Ni-containing phase, and may create a relatively stable sink for Ni in soils and sediments.