

PB-Contaminated Whole Soils: XANES and EXAFS Studies.

J.R. CHANG and D.L. SPARKS, Univ. of Delaware,  
G.N. LAMBLE, Brookhaven National Lab, M.J. KELLEY\*, E.I.  
du Pont de Nemours & Co., Inc.

Lead-contaminated soils ranging from a few percent downward are found at process industry sites, some originating from lead organometallics in gasoline antiknocks. Detailed knowledge of the lead species now present is vital to assessing the hazard that these levels represent and what remediation approaches may be fruitful. Whether conventional analytical techniques would alter speciation and whether they would be responsive to strongly adsorbed forms is uncertain. Instead we carried out x-ray absorption spectroscopy on whole soils at the Pb L-III edge (13035 eV) with no alteration except for freezing. Useful results were obtained to below 1000 ppm Pb. As expected, understanding the higher concentrations is best approached in terms of bulk Pb compounds, but not at low levels. Striking throughout is responsiveness to sulfur.

M.J. Kelley, (302) 695-3829 [KELLEYMJ@ESVAX.dnet.dupont.com](mailto:KELLEYMJ@ESVAX.dnet.dupont.com)