

Abstract of Meeting Paper

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Bench Top Bioaccessability Study for Quantifying Dose Derived from the Oral Route of Exposure. *K. A. Fehling, D. M. Proctor, and E. C. Shay, ChemRisk Division of McLaren/Hart, 8500 Brooktree Road, Suite 300, Wexford, PA 15090*

When quantifying dose for environmental risk assessments, the assessor is often forced to rely upon USEPA reference doses (RfDs) and cancer potency factors (CPFs) that have been derived from administered doses. The RfDs and SFs that are from drinking water studies are, therefore, based upon 100% lubricized and 100% bioaccessible chemical doses. Consequently, risk assessments which address exposures via contaminated soil ingestion assume that the chemical being studied in soil is as bioaccessible as the study upon which the RfD or SF was based. USEPA recognizes this problem and cautions that this shortcoming should be addressed when possible (USEPA, 1989). We have developed a benchtop bioaccessability study for metals to account for this difference in bioaccessabilities and is based upon the HCl acid content of a child's stomach and USEPA default soil ingestion rate for this, the most sensitive age group to environmental contaminants. The results indicate the bioaccessability for metals in soils, electric arc furnace slag, basic oxygen furnace slag, and blast furnace slag range from 2 to 84, and indicate that failure to account for bioaccessability may lead to unnecessarily low soil cleanup levels and risk estimates that overestimate the true health risks.