

**AIR-VEGETATION-SOIL PARTITIONING OF TOXIC CHEMICALS IN  
ENVIRONMENTAL SIMULATION MODELING**

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**ABSTRACT**

Accumulation of airborne pollutants in vegetation is an important initial step in the uptake process of the terrestrial food web, providing direct and indirect routes by which biota and, eventually, humans are exposed to chemicals. Algorithms and models for estimating pollutant interactions in soil-vegetation-air systems are presented and discussed. Several testing applications of the models are also presented in the following cases: cadmium in grass vegetation and dioxin-like compounds (PCDD/PCDF homologues) in below-ground vegetation. Results indicate that the models are suitable for screening-level assessments; they can, therefore, be used as a component of a management-oriented and multimedia-based assessment of pollutant fate and accumulation in vegetation. The importance of appropriate methods for model parameter estimation is also demonstrated. On-going work is incorporating these algorithms into an integrated multimedia simulation model to provide better model capabilities.