

Reddy C.M., Heraty L.J., Holt B.D., Sturchio N.C., Eglinton T.I., Drenzek, N.D., Xu, L., Lake J.L., and Maruya K.A., *Stable chlorine isotopic compositions of Aroclors and Aroclor-contaminated sediments*, Env. Sci. and Technol., 2000; v34, 2866-2870.

An exploratory study was conducted to evaluate if stable chlorine isotopic ratios of polychlorinated biphenyls (PCBs) could be useful in studying the processes that det. their transport and fate in the environment. We detd. the variability of d37Cl in the source materials for PCBs. We detd. if the d37Cl values of contaminated environmental samples fell outside the range in source variability. The isotopic variability among the source materials (Aroclors) was rather small; d37Cl values were -3.37 to -2.11 permill. (mean and std. deviation, -2.78±0.39 permill., n =12). There was no correlation between the d37Cl values and percentages of chlorine in the mixts. We found very similar values in several Clophen mixts. and one Phenoclor. The d37Cl values in the total PCBs isolated from Aroclor-contaminated sediments from the Hudson River, New Bedford Harbor, and Turtle River Estuary were -4.54 to -2.25% (n =19). While most of the d37Cl values were within 2 std. deviations of the mean Aroclor value (our assumed est. for overall source variability), 2 of the PCB contaminated sediment samples from New Bedford Harbor did appear to be isotopically distinct. The PCBs in these sediments had lower amts. of less chlorinated congeners (when compared to the source material) and were likely isotopically affected by alteration processes that preferentially removed these congeners. Compd. specific measurements of 2 congeners in Aroclor 1268 suggest that there are no large congener-specific differences in the stable Cl isotope ratios in Aroclors. This study shows that the d37Cl values of PCBs may be a potentially useful diagnostic tool in studying the transport and fate of PCBs and indicates that addnl. research is warranted.