

Concentration and Potential Mobility of Trace Metals in Surface Sediment of the North Pacific Ocean By BCR Sequential Concentration and Potential Mobility of Trace Metals in Surface Sediment of the North Pacific Ocean By BCR Sequential

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Metals can accumulated in sediment, sludge and soil may therefore pose an environmental problem concerning possible metal transfer from sediment to the aquatic system and including them in the food chain. European Community Bureau of Reference (BCR) sequential methods commonly used to trace metals in the sediment or soil samples and can be provide information about bio-availability, mobility or toxicity which are basically depend on the chemical bonding between metals and solid phases of the samples.

Geochemical fractionation of Cadmium (Cd), Lead (Pb), Cobalt (Co), Zinc (Zn), Iron (Fe) and Manganese (Mn) in sediment of the North Pacific Ocean were determined using four-stages of modified BCR sequential extraction methods combination with ICP-MS. Also the contamination factors and risk assessment code effects on surface sediment samples are discussed.

The mean contents of the trace metals in surface sediment of the North Pacific Ocean were: Cd: 0.00; Pb: 13.94; Mn: 2732.94; Fe: 29795.10; Co: 22.16; and Zn:76.75 $\mu\text{g}\cdot\text{g}^{-1}$, allowing to arrange the trace metals concentration from higher to lower were in the following order: Fe > Mn > Zn > Co > Pb > Cd. Pb was distributed in three fractions (acid soluble, reducible, and residual). Mn and Co were found in a group with mainly reducible fraction, while Fe and Zn were mainly in residual fraction. The high contamination factor was obtained for Mn and Co in the sediment samples, while the lowest was found for Fe. The result showed non risk for Fe, Co, Pb and Cd, while low risk is indicated for Mn and Zn at all stations.

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