

## **MONITORING OF HEAVY METAL DISTRIBUTION IN THE VICINITY OF THE DUKUM AU-AG MINE IN KOREA**

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In order to monitor the degree of heavy metal contamination, tailings, soils and crop plants were collected around the abandoned Dukum Au-Ag mine and analyzed for heavy metals. Sequential extraction analysis for tailings and soils was also performed to determine the chemical speciation of heavy metals, and to establish the useful criteria for risk assessment. In addition, soil properties such as pH, CEC, content of organic matters and particle size distribution were measured. The tailings are acidic (less than 4.0 of pH) and sandy (more than 50% of sand). The average concentrations of Cd, Cu, Pb and Zn extracted by aqua regia are 3.70 mg/kg, 166 mg/kg, 2341 mg/kg and 529 mg/kg in tailings, and 17.86 mg/kg, 278 mg/kg, 2499 mg/kg and 3103 mg/kg in soils from dressing plant, respectively. High concentrations of heavy metals are found in agricultural soils, and anomalous high concentration of Cd (7.51 mg/kg) is found in a potato leaf sample. From the results of sequential analysis, it is suggested that the percentage of exchangeable fractions of Cd and Zn are higher than those of Cu and Pb, which is coincident with the high biological absorption coefficients of Cd and Zn. The concentrations in each step of sequential extraction analysis may be used for the risk assessment of heavy metals using Danger Index.