

Analysis of the Distributions of Lead for Steady State in Urban Multimedia Environment

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The environmental contamination problems by the accelerated industrialization are recently getting more important issues. It is necessary to estimate the distributions of contaminants and to recognize risks to our environment. To analyze the behavior of volatile organic compounds(VOC) can be achieved with a concept of fugacity. However, it is difficult to simulate the fate of heavy metals with that concept because the vapor pressure of heavy metals is extremely small or unknown. Therefore, the equivalence theory, modified from the fugacity theory, is utilized to establish a mathematical model and to analyze the fate of the heavy metal in urban multimedia system. The target heavy metal is lead and the target region is around Jungrang stream in Seoul. The multimedia is composed of air, water, sediment, soil, vegetation and specific layers on the pavement and the exterior surface of buildings. To verify the proposed mathematical model, the modeling results were compared with measurement data conferred from Korea Testing and Research Institute.