

An online monitoring and measurement system of elemental mercury from contaminated soils

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We have studied ways of continuously monitoring and determining concentrations of gas-phase elemental mercury using an appropriate technique with the help of a continuous generation and detection of the mercury to simulate its thermal desorption from contaminated soils and capture. An online system consisting of a permeation tube of elemental mercury and its high precision detector was built up and tested. The rate of the mercury permeation at chosen conditions was carefully calibrated and compared to that calculated theoretically. The detection in a wide range of mercury concentrations was conducted using a commercial monitor that had been extensively modified for allowing real time measurements. Optimal photomultiplier voltages with relatively very narrow intervals less than 50 V existed to make a continuous detection of the elemental mercury with high concentrations.