

## THE DETERMINATION OF $^{226}\text{Ra}$ IN WATER SAMPLES

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### ABSTRACT

Kuruc J., Ceklovsky A., Rajec P.: **The Determination of  $^{226}\text{Ra}$  in water samples**

The objective of this work was to develop a method for determination of  $^{226}\text{Ra}$  volume activities of  $^{226}\text{Ra}$  in drinking water, using of radon emanation technique. This specific method for  $^{226}\text{Ra}$  is based on the emanation and scintillation counting of  $^{222}\text{Rn}$ , a daughter product of  $^{226}\text{Ra}$ . The  $^{226}\text{Ra}$  from the water sample is separated by co-precipitation on barium sulphate. The precipitate is dissolved in EDTA reagent, placed in a sealed bubbler and stored for ingrowths of  $^{222}\text{Rn}$ . After ingrowths, the gas is purged into a scintillation cell. When the short-lived  $^{222}\text{Rn}$  daughters are in equilibrium with the parent (4h), the scintillation cell is counted for alpha activity. All results were in range from  $0.017 \text{ Bq}\cdot\text{dm}^{-3}$  to  $1.54 \text{ Bq}\cdot\text{dm}^{-3}$ . This measurement proved that the separation technique and measurement method are fully applicable for determination of  $^{226}\text{Ra}$  in drinking water samples.

**Key words** (INIS): radium 226; radon 222; radiation monitoring; drinking water; dose commitments;