

International Conference on the Management of Naturally Occurring Radioactive Materials (NORM) in Industry

VIRTUAL EVENT

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Measurement of the radon exhalation rate and effective radium concentration in some soil samples of Obuasi Municipality a mining town in Ghana using the Sealed Can Technique

In the present study, the seasonal variation of radium and radon exhalation rates in terms mass and area was measured in four towns in the Obuasi Municipality, a mining town using the sealed can technique. The results show variation of radon exhalation rate with radium content of the soil samples. In the dry season, area exhalation rate, mass exhalation rate and radium content in the soil samples varied from 10.33 $\mu\text{Bq}\cdot\text{m}^{-2}\cdot\text{h}^{-1}$ -42.34 $\mu\text{Bq}\cdot\text{m}^{-2}\cdot\text{h}^{-1}$, 2.51 $\mu\text{Bqkg}^{-1}\cdot\text{h}^{-1}$ -10.29 $\mu\text{Bqkg}^{-1}\cdot\text{h}^{-1}$ and 33.59 Bqkg^{-1} -137.68 Bqkg^{-1} respectively and in the rainy season the area exhalation rate, mass exhalation rate and radium content in the soil samples varied from 2.13 $\mu\text{Bq}\cdot\text{m}^{-2}\cdot\text{h}^{-1}$ -32.95 $\mu\text{Bq}\cdot\text{m}^{-2}\cdot\text{h}^{-1}$, 0.52 $\mu\text{Bqkg}^{-1}\cdot\text{h}^{-1}$ -8.01 $\mu\text{Bqkg}^{-1}\cdot\text{h}^{-1}$ and 6.84 Bqkg^{-1} -105 Bqkg^{-1} . A strong positive correlation was observed between radium content and radon exhalation rate.

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