

Diffusion Length of Radon in Building Materials

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Abstract

The present work aims to find out the diffusion coefficients and diffusion lengths in some brick samples. The diffusion coefficients and diffusion lengths have been calculated using solid state nuclear track detectors (LR-115). The diffusion lengths varied from 55.4×10^{-3} m to 924.8×10^{-3} m. The calculated values of radon concentration of brick samples varied from 30 ± 18.1467 Bqm⁻³ to 167 ± 37.0239 Bqm⁻³. The diffusion coefficients varied from 0.0065×10^{-6} m²s⁻¹ to 1.79×10^{-6} m²s⁻¹. The annual effective doses varied from 0.52 ± 0.3121 mSvyr⁻¹ to 2.87 ± 0.6368 mSvyr⁻¹. The value of annual effective dose was recommended by International Commission on Radiological Protection Publication (ICRP) is 5 mSvyr⁻¹. This study reveals that there is no serious radiation health hazard to the public using the brick samples.

Key words: solid state nuclear track detectors(SSNTD), diffusion lengths

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