MEASUREMENT OF INDOOR AND OUTDOOR RADON CONCENTRATION IN IPOH, PERAK

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ABSRACT

MEASUREMENT OF INDOOR AND OUTDOOR RADON CONCENTRATION IN IPOH, PERAK

Diurnal variation measurements of the ^{222}Rn concentration in Ipoh Perak were performed from November 2008 to January 2009.The sample was taken randomly for about 20 houses all around Ipoh area. The study was done in Ipoh due to this places are well known as a former tin mining lake before. Radon source is from uranium (^{238}U) that undergo several step of decay and radon is resulting from the radioactive decay of Radium (^{226}Ra).The measurement in Ipoh Perak was carried out by using Sun Nuclear Professional Continuous Radon Monitor model 1027 for 24 hours at hourly interval of measurement. It was found that that the outdoor radon concentration average in each houses varied in the range 0.00 pCi/L to 0.80 pCi/L and the indoor radon concentration average in each house is varied in the range 0.2 pCi/L to 1.0 pCi/L. Linear correlation coefficients of 0.4533 was observed and indicate an influence of the outdoor radon concentration on the indoor content. All the results obtain are well below the USEPA action level which are 4 pCi/L for indoor and 0.4 pCi/L for outdoor. Indoor radon concentration is mainly associated with the radon production rate of building material, ventilation rate, and the outdoor radon concentrations. Radon production rate of a room is defined as the sum of the products of the radon emanation rates and the exposed areas of the materials. Since the selection of the building materials and the exposed areas are different, it makes the radon production rate of homes fall in a quite wide range.