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A study of natural radioactivity in the welding workshops waste

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In this study, the natural radio activities of ^{40}K , ^{226}Ra and ^{232}Th and the man-made ^{137}Cs in samples of solid wastes of (TIG) welding process, was collected from the welding workshops in different locations of Saudi Arabia (Jeddah, Asfan and Tabuk). The concentrations of ^{226}Ra , ^{232}Th , ^{40}K and ^{137}Cs were determined by gamma-ray spectrometer using HPGe detector. The results show that the average concentrations were 44.8, 50.23, 431.82 and 1.5 Bq/Kg, respectively. Radium equivalent activities of the samples under consideration were calculated with an average value of 127 Bq/Kg. The total absorbed dose in the study samples ranged between the lower value (0.027) mGy/h (sample No.4) to the higher value (0.628) mGy/h (sample No.5), with an average value of (0.19) mGy/h which is lower than the limits as recommended by UNSCEAR 2000. Also, heavy metals analysis was done by atomic absorption spectrophotometer. The concentration's average values of Ca, Fe, K, Mg, Bi, Pb and Th elements in the samples of welding workshops waste were 1.02%, 63.18%, 0.25%, 0.25%, 76.99 ppm, 62.87 ppm and 17.63 ppm, respectively. The data were discussed and compared with limits given by United Nations Scientific Committee for the effects of Atomic Radiation (UNSCEAR).

Biography

Z M Alamoudi completed Doctor of Philosophy in Science (Experimental Physics) from King Abdulaziz University (KAU), Faculty of Science, Physics Department. She is serving as Head of Physics Department for 4 years in the same university. She has published more than 15 papers in reputed journals and attended and participated in many national and international conferences.

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