

عنوان مقاله:

Gamma Spectrometric Analysis of Iron Ore Samples of Arak, Iran

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خلاصه مقاله:

Introduction Iron ore is one of the most important natural raw materials that is widely used for manufacturing iron and steel. This type of ore contains various amounts of radionuclides; thus, exposing workers handling their extraction, transportation, and processing to radiation. **Materials and Methods** In this study, 12 ore samples (each mass weighing about 2 kg) were collected from the iron ore mining areas of Arak region, Iran. The specific activities of ^{226}Ra , ^{232}Th , and ^{40}K were determined using gamma-ray spectrometry method employing high-purity germanium (HPGe) detector. **Results** The specific activities of ^{226}Ra , ^{232}Th , and ^{40}K in samples were 9.39-271.70 Bq/kg, -3 Sv/y) suggested in International Commission of Radiological Protection (ICRP) Publication 82. **Conclusion** The gamma ray spectrometric analysis showed that the specific activities of natural radionuclides in samples, except for limonite ore, were within the worldwide range. The effective dose received by workers was much lower than the maximum acceptable value (1000 $\mu\text{Sv/y}$); therefore, the level of radiations in this mine had no adverse consequences for public health

کلمات کلیدی:

Dose assessment, Iron ore, Natural radiation, Radionuclide

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