Extraction of uranium from an unconventional deposit by the radiometric emission method: Application to the phosphate deposit of Dj. Onk, eastern Algeria

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Uranium is an element that exists in the phosphate deposits of Dj. Onk. It turns out that this radioactive element replaces the calcium (Ca^{2+}) cations in the apatite network of the phosphated material, as it can precipitate directly because of the reducing nature of the phosphate medium. The determination of uranium in phosphates allowed to demonstrate its presence with an average content of 48 ppm. Its existence in phosphates may cause an environmental problem, following the formation of phosphogypsum heaps from the industrial production of fertilizers. Radioactivity, which is a physical property appropriate to this unstable chemical element, and its characteristics can be used to recover it by optimal selection: radiometric separation. This method is based on the emission of radiation using the natural radioactivity of a chemical element. It is ecologically clean with secondary production of uranium from a phosphate deposit that can exceed 25,000 tons.