

International Conference on the Management of Naturally Occurring Radioactive Materials (NORM) in Industry

VIRTUAL EVENT

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Spectroscopic measurements for quantitative removal of naturally occurring radioactive materials from monazite green leachate

Monazite as the major ore of the black sand contains naturally occurring radioactive elements such as ; thorium, uranium, lanthanum and some other rare earth elements. Separation of those elements from monazite was passed through several steps. In case of uranium, it has been concentrated in the green leachate solution and its separation of uranium passed through several steps and assured with spectroscopic measurements. Treatment process of producing (NORM) uranium mostly contaminated with iron in a green leachate solution which is defined as a green rust solution enriched with phosphate medium. A further step is needed to separation of uranium from that green solution. Therefore, separation of uranium was done by adjusting pH, where in acidic medium all the lanthanide and thorium was precipitated and at highly alkaline media uranium was separated as a yellow potassium diuranate which dissolves easily in nitric acid forming uranyl nitrate. Spectrophotometric measurement as a qualitative and quantitative assurance with uv-vis direct and indirect measurements and spectrofluorometric technique was used in order to prove the presence of uranium qualitatively and quantitatively.

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