



## Preferential leaching of Sr from mixed (Th/Sr) oxide

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### ABSTRACT

Preferential leaching of Sr from irradiated thorium may play an important role to facilitate the management of high level waste as well as provide a new route to recover valuable fission product <sup>90</sup>Sr which has potential applications as (a) compact heat source and (b) as parent radionuclide for <sup>90</sup>Y, used in therapeutic radiopharmaceuticals. In the present work, leaching of Sr from (Th,Sr)O<sub>2</sub> in nitric acid and perchloric acid medium has been investigated as a function of acidity as well as refluxation time. It was interesting to observe that quantitative leaching of Sr(II) is possible even at 0.01 M HClO<sub>4</sub> where leaching of Th is negligible (~0.01%). Leaching behavior of other metal ions, like Pd(II), Y(III), and Zr(IV), representing few major fission products was also investigated.

*Keywords:* Thorium; Strontium; Leaching; Perchloric acid; Fission products; ICP-OES

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