Radiochemical separation of Mo99 from natural uranium irradiated with thermal neutrons.

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Abstract

99Mo was separated from uranium and insoluble fission product hydroxides. More than 98% of99Mo radioactivity was extracted with bis (2-ethylhexyl) phosphoric acid. The organic phase was washed and99Mo was back-extracted from the organic phase with NH4OH solution. The percent recovery from the organic phase was 91% and the purity of99Mo was more than 99%. Pure99mTc was also extracted from the organic phase with a saline solution. Reversed-phase partition chromatography was used for the purification of99Mo from131I and other fission products (10% HDEHP on kieselguhr bed).131I and other isotopes were quantitatively eluted with 0.1M H2SO4,99Mo was eluted using a mixture of 0.5 M HCl and 30% H2O2.