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Single Column Ion Exchange Separation of the Transplutonium Elements from Uranium Targets Bombarded with Heavy Ions and Catcher Foils*

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A simple pressurized ion exchange apparatus has been devised for rapid ion exchange separation of transplutonium elements synthesized by heavy ion bombardment. Cation exchange with mixed media of mineral acids and organic solvents at elevated temperature was used to separate the transplutonium elements from uranium targets and/or catcher foils (aluminium and copper) dissolved in aqua regia. The transplutonium elements were strongly adsorbed on the cation exchange column and separated in a group from rare earths by elution with hydrochloric acid or mutually separated with 2-hydroxy-2-methylpropionate solution. It has been successfully applied to separate and identify ^{250}Fm and ^{246}Cf synthesized by the $^{16}\text{O}+^{238}\text{U}$ reaction.

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