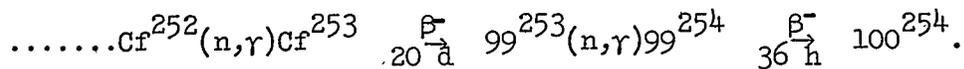


CHEMICAL PROPERTIES OF ELEMENTS 99 AND 100

S. G. Thompson, B. G. Harvey, G. R. Choppin and G. T. Seaborg
 Department of Chemistry and Radiation Laboratory
 University of California, Berkeley, California

July 23, 1954

Isotopes of elements 99 and 100 have been produced by neutron irradiation of Pu^{239} ; the final steps in their production are indicated by the following reaction sequence:¹⁻⁵



The properties of some of the isotopes thus produced are listed in Table I. These were the isotopes used for the present tracer studies of the chemical properties of the new elements.

Table I

Isotope	Radiations	Half-Life
${}_{99}^{253}$	6.68 Mev α	~20 days
${}_{99}^{254}$	1.1 Mev β^-	36 hours
${}_{100}^{254}$	7.22 Mev α	3.2 hours

The first separation and identification of the new elements proved that prior expectations⁶ concerning the stability of their tripositive states, their precipitation properties and exchange column elution sequences were correct; in short, that they are chemically very similar to their actinide predecessors,^{7,8} differing in the manner to be expected for ions of somewhat smaller radius.